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Russian Medicine in War

An Anglo-Soviet Medical Committee was set up several months ago. Among its objects is the study of environmental and social medicine in Russia. In 1913, there were 175,634 hospital beds in Russia, in 1932 405,800. The population of Russia in 1933 was 165,748,400. The figure of just over two beds per 1,000 of the population is in comparison with the norm of five beds per thousand taken by the International Labour Office, or with the seven beds per thousand in England.

A report of Professor M. O. Friedland, chief military surgeon of Moscow's Botkin Hospital, was recently published in *The New York Times*. He explained how antitetanus and antigangrene injections had proved highly successful in reducing the incidence of infection. Tetanus is rare. It is a strict rule of Soviet military medicine that those injections be given at field stations as soon as possible. The terrible wounds caused by mines and mortars, which tear away great sections of flesh and bone and often leave pieces of metal in the body, would prove far more dangerous if it were not for the use of various sulfa drugs.

Preliminary treatment for shock includes the use of morphine, alcohol and various heart stimulants, blood transfusion and injections providing warmth. All Soviet citizens have periodic blood tests for reasons of social hygiene, and it is an easy matter for a hospital wanting blood to call up one of the organizations with which it is in contact and ask for the required number of donors.

Air transport is used extensively to move wounded men. The medical supplies found by military hospitals to be most necessary are the sulfanilamides, Peruvian balsam, American vaseline, various mineral oil ointments, tannin, bismuth and bandage material. Until the front was rolled back from Moscow, the Botkin hospital, which is the largest medical unit in the Soviet Union, with 2,350 beds, acted virtually as a front-line hospital. Now that the front is more than one hundred miles away, Botkin has become a base hospital and is even resuming medical courses for the training of field surgeons.

In the hospitals, officers and men are in the same wards, although officers can, if they desire, go to special hospitals. According to the doctors, the officers usually prefer to stay in the wards to which they are taken at first.

The standard of medical services in Russia undoubtedly is high, and cleanliness has become almost a fetish. This was true also in the old Russian hospitals before the First World War when their cleanliness amazed visitors.

American War Surgery

In the crisis of the Japanese attack on Pearl Harbor of December 7th, United States Navy physicians and nurses, aided by assistants who rushed to their aid from Honolulu, cared for 960 casualties—in many cases terribly burned and wounded men—by working constantly for sixteen hours. By nightfall of that fateful day ninety percent of the casualties brought in had been treated although much surgery remained to be done. More than sixty percent of the injuries were due to burns. The majority were "flash burns" to which the flesh had been exposed only a second or so.

The burned sailors, according to reports, were treated with two main remedies. One was a mixture of mineral oil and sulfanilamide or sulfathiazole. Large dressings were dipped in this mixture and applied directly to the burned surface. In some cases the dressings were dipped in a tannic acid solution, and sometimes tannic acid jelly was rubbed gently over the burned surface.

Lessons in surgical and medical treatment learned in Honolulu during that attack will be invaluable to the United States. Thus said Dr. J. J. Moorhead, professor of surgery at New York Post-Graduate Medical School and Hospital who was lecturing to a group of physicians at Honolulu when the Japanese planes roared overhead, from whence he rushed immediately to the Army hospital in Honolulu to start work.

Another report by Dr. Perrin Long, of Johns Hopkins Medical School, who was accompanied in a mission to Hawaii by Dr. I. S. Ravdin, professor of surgery at the University of Pennsylvania, points out that sulfa drugs plus good organization, that gave the wounded prompt attention, performed wonders. Even among men whose wounds had been contaminated with the fertilizer dirty soil of Hickam and Wheeler Fields, and whose wounds were not cleaned out by debridement for twenty-four hours, not a single massive infection

was found ten days later. Not a single loss of arm or leg was necessary because of infection. Credit for this remarkable record is shared by the sulfa drugs and the efficient preparations of far-sighted Colonel E. L. King, surgeon-in-charge of the Army's medical forces in Hawaii. Already in the spring of 1941 he had organized all civilian, Navy and Army medical forces to meet possible disaster.

The Herculean task of moving General MacArthur's forces to Bataan meant for the Medical Corps, under Colonel Wibb E. Cooper, establishing base hospitals in the thick, malaria-infested jungles, bulldozing through two and a half miles of tangled brush, working while dive bombers were operating overhead. Some of the details of this gigantic task are given by Melville Jacoby, a reporter for *Life* magazine, in his cables from Corregidor. The open-air base hospital at Bataan, under the direction of Colonel Carlton L. Vanderboget, is able to take care of nearly three thousand patients. Trucks bring the wounded from the front to the first-aid stations and Americans and Filipinos, regardless of rank, are given the same treatment and facilities.

The Medical Corps is helping also by personal sacrifice. Both doctors and nurses donated their own blood during a night when amputation cases were on every table. The open-air treatment of anaerobic bacillus infection which causes gas gangrene is new and successful in Bataan. The infected wound is cleansed with a hydrogen peroxide wash which liberates free oxygen, aiding the destruction of the bacillus. The wound is then left open with the muscles slit longitudinally by extensive incisions, exposing the deepest infected tissues. The use of the conservative surgery method in the Bataan jungles came by accident when the doctors ran out of serum. Their only recourse then was amputation, but in a case of gas gangrene infection, where amputation was impossible, Lieutenant Colonel Frank Adamo inaugurated what he terms conservative surgery which he now uses with continued success and the saving of many limbs.

In a report on war injuries to the head, by Dr. R. B. Cloward, Honolulu, we find the remarkable observation that few of the patients with penetrating wounds of the brain were brought to the receiving station in an unconscious state. Doctors who saw the patients were surprised to find that the majority of them had not even been unconscious but were able to recall everything that had transpired from the time they were hit until they arrived at the hospital. Patients with large gaping wounds in the frontal areas with considerable quantities of cerebral tissue oozing from the wounds were found to be conscious, cooperative, rational and able to identify themselves. Most of the patients were in a state of mild shock with lowered blood pressure and pulse rates of 90 to 110.

Prophylaxis of Venereal Disease

In an editorial under this title (MEDICAL RECORD, February 1942) it was stated: "Does the absence of the record [of prevention of venereal disease by introduction of sulfathiazole after exposure] indicate no medical officer on board a ship. . .has appropriated the new chemotherapy to an age old problem—the prevention of venereal disease by sexual exposure?" Elsewhere in this issue, we publish the remarks of Dr. Herman Goodman, as chairman of the scientific session of the New York Branch of the American Pharmaceutical Association, at a meeting held on February 9, 1942. Dr. Goodman summarizes an important contribution by Commander Joses on Asiatic Station. He administered sulfathiazole to sailors after exposure to infection with venereal disease. Another medical officer did the same. Together, these men administered sulfathiazole to six hundred men who had been exposed to infection. Only one case of gonorrhea developed among those given the modern chemotherapeutic prophylaxis, and that case was resistent to sulfonamides given in therapeutic dosage. The original report of Commander Maurice Joses, published in the *U. S. Medical Bulletin* (Jan. 1942), should be read by every practitioner of medicine and allied scientists. It appears to be the first report on a fairly wide scale of a new trend in preventive medicine.

Euthanasia

It has been advised, and sometimes by leading physicians and surgeons, that those suffering from painful, incurable disease should be subjected to euthanasia. The plea for euthanasia has become more insistent, and the question has been discussed from every conceivable angle, while legislation in support of it has been suggested. As may well be imagined, no definite conclusion has yet been reached. In the *British Quarterly Review,* April 1940, Sir Arthur Hurst deals with the subject from a practical point of view.

He points out that the possibility of curing many of the diseases which are now most amenable to treatment was out of the question a few years or even a few weeks before the new discovery guaranteeing such successful treatment was published. As an example, he cites Banting's treatment of diabetes. Again, he directs attention to the fact that the advocates of legalized euthanasia have an unjustified confidence in the ability of two qualified medical practitioners to decide with certainty that a patient is suffering from an incurable malady. He said that in several cases, which came under his notice, the diagnoses to this effect were wrong.

Further, it is remarkable how slowly malignant disease may develop, and how comfortable a patient may sometimes remain in spite of its presence. There are other valid arguments against euthanasia and the case for it has not been proved.

Papers and Addresses

TO AID AND CONSERVE THE PUBLIC WEAL*

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One of the most natural instincts of man is to seek companionship. Desire for self-preservation prompts this union with his fellow man. Common good and benefit are the purpose of such a union. Here and there have sprung up alliances that have not had selfish motives as their purpose. Organization of such groups is to be commended and encouraged for they occupy very important positions in our communities. Their function of providing common good is vital to life as we know it. Such groups deserve and receive support from the medical profession, and wherever the underprivileged are the benefactors, it is gratifying to note that the doctor gives his whole hearted support. Without the doctor many of these organizations could not survive, and the enormous amount of good that they do would never be accomplished. Many of our fellow citizens would suffer unknown hardships. Such support from the medical profession is expected and rightly so.

The forefathers of medicine through their adherence to the oath of Hippocrates, gained for themselves and passed on to the present generation an enviable reputation; a reputation that is sacred and demanding of the respect of all. Refusal to participate in public affairs that demand the knowledge and skill of the physician would be a violation of his right and privilege to serve, and an offense against the code that has guided him so capably through the ages. Never could it truthfully be said that the medical profession has ever shirked its responsibility, and organized medicine today is determined that there never will be cause for such an accusation.

If there is such a unity of opinion among its members, why then should there be an American Medical Association, State Medical Societies and County Medical Societies? Is there need for such organizations of groups of men and women if there is nothing but a charitable attitude toward humanity as their purpose? Such union is necessary to protect its ideals, to present a united front against assaults, that are being made constantly, by those who strive for changes, that mean, not better care of the sick, but personal, material and pecuniary gain. Call this a selfish motive if you will but with every branch of industry and almost every calling organized, the individuals interested could not, unless united, protect the traditions and ideals of medicine that are so important to public welfare.

One hundred and twenty years ago, the Medical Society of the County of Kings was organized. The organization was built on a solid foundation, and its members throughout the years have served, not only the profession but the public as well. The constitution under which it functions, clearly defines the purposes of the society. To quote, "The object shall be to provide educational opportunities for the medical profession of Brooklyn, in order that the highest possible standard of practice may be attained; to maintain a medical library; to diffuse among the people knowledge of the achievements of scientific medicine; to aid and conserve the public weal by participating in all proper civic enterprises, and to fulfill the duties of a County Medical Society to the profession and the public". Are these but hollow words, with which the society hopes to gain favor with the public, a never to be fulfilled pledge, or are they the solemn promise that the founders meant them to be? Are the officers and almost three thousand members aware of their responsibility toward the public and do they strive to perform their voluntarily assumed duty? If one will interest himself in the daily activities of the society, he will be convinced that this responsibility is looked upon with such gravity that an inestimable amount of time and effort are devoted toward the maintenance of the good reputation that has been so well earned. For over a hundred years, members have served on committees, whose only purpose has been the public welfare. Their unselfishness, their devotion, their sacrifices are recorded in the proceedings of the society and known to but a few; but their accomplishments have lived on, continuing to comfort and provide better health for the people of Brooklyn.

Such benefits to the public are accomplished in two ways: First, by providing educational opportunities for the medical profession in order that the highest possible standard of practice may be attained, and second by participating in all proper civic enterprises.

The Society's Educational Program

The educational program is a broad one. Every physician in Brooklyn is afforded, through the society, every facility for keeping up to date in his knowledge of the advances in medicine. Provided for him are the monthly scientific meetings, the Friday afternoon lectures and the Monday round table conferences, intensive postgraduate refresher courses, as well as various series of lectures, and special conferences that are timely and informative.

From the beginning, monthly scientific programs have been a part of the organization's program. It is impossible to estimate the amount of benefit derived from this, or the amount of information dispersed in this way. Prominent speakers, authorities and teachers from all over our country have participated in this work.

Realizing its importance, this type of education was

*Inaugural address of the president of the Medical Society of the County of Kings, presented on January 20, 1942.

expanded in 1922, and in addition, weekly lectures of interest to the practitioner, to those upon whom every family in the community depends, were started. They continue to the present day and about 250 such lectures have been given. Further advances along this line were undertaken in 1941 when round table conferences were added. An attendance of over forty thousand for the entire series testifies to the popularity of this form of education.

Prompted by the enthusiastic response of the rank and file of its membership to an educational program, the society went further in 1923 and organized a series of postgraduate courses. This was accomplished jointly with the Long Island College of Medicine and from 1923 to 1941 inclusive, 639 courses were given. These courses are varied in nature and planned to include every branch of medicine. They are given by specialists and teachers, for the practitioner, and serve to make him better qualified to conduct his everyday practice. The total registration for these courses was 4,194. Literature explaining this plan of education is on file and the method has been followed by numerous county and state medical societies throughout the country. The committee, concluding a description of this in a booklet known as "The Brooklyn Idea", published in 1926 by Paul B. Hoeber, states "when a similar type of work is offered in every state in the union, the general level of medicine will have been raised. We will command the respect and confidence of the public in a greater degree, because we are offering to the public, men who may truly be called 'Better Doctors'."

Postgraduate courses of this nature are not intended to provide a short cut to the specialties; their purpose is to refresh the mind of the doctor on the fundamentals of the various branches of medicine and to inform him of recent advances in specialized knowledge. For those who are specialists there are the section meetings conducted in the society building, where each group arranges programs best suited for its needs. Success has rewarded the efforts of those who worked so hard to provide this magnificent plan of education, and that success can best be measured by the enthusiastic response of the membership of the society. This response cannot be attributed to a primary enthusiasm but to the conscientious desire on the part of the medical profession, as a whole, to make themselves better doctors.

Later, constructive work of the Committee on Maternal Welfare adjusted itself admirably to this program. Pioneering in this field in 1935, the committee decided to make a careful study of all maternal deaths in the Borough of Brooklyn. With the cooperation of the Commissioner of Health and the Maternity Center Division of the Visiting Nurse Association of Brooklyn, material for such a study was obtained and the work begun. Since 1936, obstetrical conferences have been held monthly in the society auditorium. To these meetings are invited every doctor in Brooklyn, and those living outside of the borough are welcome guests. A group of approximately two hundred, composed of general practitioners, specialists, residents and interns, attends these conferences. The actual maternal deaths occurring in Brooklyn are discussed after a comprehensive review of the case is presented. After critical discussion, authoritative modern obstetrical treatment is reviewed. The value of these discussions cannot be overestimated. Proof of this can be found in the puerperal death rate for the past six years. In 1935 there were 197 maternal deaths or a rate of 5.1 per thousand. Steadily decreasing until in 1940 there were 111 deaths, a rate of 2.6 per thousand live births—about half. In municipal hospitals the rate 2.5 in 1940 was the lowest in the history of the department. In the Quarterly Bulletin of the Department of Health, February 1941, in referring to the decrease in the puerperal death rate, it is stated: "Here too the Advisory Obstetrical Council and the County Medical Societies have done and are continuing to do effective work, as can be seen by the marked reduction in puerperal mortality since 1935". The interest and enthusiasm with which these conferences are received and attended, as well as the results, indicate that this method of postgraduate education is the best yet developed.

Pioneering as it did in the study of maternal deaths, indicates the timeliness of programs that provide information of immediate necessity to the doctor. His education in that which is of present day importance prompted the Committee on Public Health to consider the problem of Health in Industry. With the national defense program in full swing, the importance of this branch of medicine is clear. A series of lectures, covering all phases of the subject and given by authorities and specialists in the field, is now in progress. The hearty response, as is evidenced by full attendance at the meetings, is a source of gratification to those who have devoted time and effort to the preparation of this program.

No educational program would be complete without adequate library facilities. Almost since its beginning the library has been the hub around which County Society activities have revolved. No course in education could be adequate without the accessibility of a modern, up-to-date library, and this the organization provides. Containing over 155,000 volumes, it ranks fifth in size in medical libraries in the United States. That it is appreciated and used is proved by the fact that in 1940 and 1941, 28,206 readers consulted 130,505 books and took out for home use 22,940 volumes. Frequently made use of by medical students, college students, the legal and dental professions, research workers among the laity as well as the press, the library of the Medical Society of the County of Kings is an indispensable Brooklyn institution.

It may be said that these activities are of benefit only to the doctor, to develop him and to increase his ability to care intelligently for the sick. But it cannot be denied that better doctors mean better health for the public. Every effort of the society is devoted toward the improvement of the standards of medical practice and to attain this, constant education of the doctor is fundamental.

All this is but a brief sketch of what the society is doing to provide better medical care for the public. However, realizing the weakness of human nature, it is appreciated that more must be done to protect the public from falling into the hands of charlatans and quacks. Always on the alert and working in conjunction with the office of the District Attorney, many such individuals who prey upon an uninformed public have been prosecuted through the efforts of the Committee on Illegal Practice. A Board of Censors elected by the membership of the society, scrutinizes, interviews and

investigates every candidate for membership before recommending him for admission to the society. The same body instructs him in the principles of professional conduct of the Medical Society of the State of New York and impresses upon him the necessity of adhering to these principles. Complaints against members are investigated by this Board and if found guilty the member is disciplined, even expelled. Membership carries with it added responsibilities and obligations voluntarily assumed and adhered to rigidly. If one is not a member of his county medical society, the public, in all fairness, may ask "Why?" Non-members of the society also fall under the organization's jurisdiction in their relationship to the public. Legally vested with the authority, the Compensation Commission designates those who have proved themselves capable and qualified to care for the more serious compensable diseases. This committee also lists those who are qualified to serve as specialists, whether members of the society or not.

Medical Information for the Laity

Providing the community with better doctors has not been sufficient in the mind of the organization to assure the highest possible level of public health. As well as educating the doctor, much thought has been given to methods of providing authentic information on health subjects to interested lay audiences, as well as the law makers of our country, state, county and city. The Legislative Committee by its careful watch and diligent study of proposed health legislation has given to these representatives of the people, information of inestimable value in guiding them toward proper decisions in public health matters.

Lay audiences of unknown numbers have benefited by health information provided through the medium of the radio. During the years 1940 and 1941, 214 broadcasts on subjects of health interest were given. Material used in these talks was authentic, carefully censored, timely, and of an instructive nature. If these broadcasts do nothing more than dispel the phobias, created by some of the commercial programs advertising medical products, they are well worth while.

In cooperation with the Brooklyn Institute of Arts and Sciences, the society has instituted a course of lectures for the laity which are held at the Academy of Music. Nationally known speakers discuss popular subjects. Audiences of from six hundred to one thousand at each of these talks indicate the demand for such information and the foresight of the organization in providing it. The public has demanded of the medical profession information pertaining to health. Newspapers and magazines advise their readers to seek all medical information, whether it be guidance as to selection of a doctor, a specialist, a hospital, nursing home or even information as to where to obtain literature and advice on cancer and tuberculosis, from their County Medical Societies. This challenge is met in the establishment of an information service that not only answers these questions by mail and by telephone, but also provides when requested, speakers for lay audiences. Through the Speaker's Bureau of the Public Health Committee, 204 such talks were given in 1940 and 1941.

Public interest in medicine is legitimate. Constantly appearing in the newspapers are stories of a medical nature. Editors are willing and anxious to publish such stories which are human and appealing and should in every instance be authentic. The society has an active Press Reference Committee that will confirm such reports and assure the readers of the truth of the facts presented. It is most gratifying to note that local papers cooperate to the greatest extent with this committee and appreciate the value of the service. Seriously and with full appreciation of its responsibility the society has and is fulfilling its pledge to participate in proper civic enterprises.

The Doctor and Selective Service

Constantly and without hesitation, the community places more and more such responsibility upon organized medicine. Willingly, the profession meets this responsibility, considering it not only a duty but a privilege to serve. In the present emergency it has proved itself indispensable to the government in the national defense program. The Selective Service Act could not be enforced without the voluntary services of the physician. Commenting upon this, Brigadier General Lewis B. Hershey, director of the Selective Service System, remarked, "Everywhere I go I am under the necessity of thanking someone for a great deal and it is true here. With ninety-nine percent of workers in selective service unpaid, it is necessary to be continually thanking someone. I do not possess control of the English language adequately to tell you what the work of anywhere from twenty thousand to fifty thousand of the medical profession of America—I am not counting the dentists—has done in the last year by selective service." In the same official statement of the director, he said, "I did feel, and do feel now, that the doctors of America have put out, uncompensated, for selective service, more than any other occupation. I do not believe that we could expect to go on as we have in the last year, asking them to do this without compensation. I tell you frankly I don't want to try to operate selective service when we start on a pay basis, because the one thing that has kept us from undesirable things was the fact that we could get men who would work for nothing, who would not work for the wages the government could afford to pay. We have got something far beyond what you can hire at the wages we could expect to pay".

Has the Medical Society of the County of Kings done its part in this nationwide effort of the government? A survey of the management of the local draft problem will show that it has. In an article in the *Brooklyn Eagle*, March 30, 1941, it was stated that at that time 575 borough doctors were assisting the 101 local draft boards. These physicians were chosen from more than one thousand who volunteered for the work and each one spends from three to six hours a week in this service. The Chairman of the Committee estimates that the government through this voluntary service will save more than $400,000 during the first year.

Realizing the importance and need for cooperation in the numerous programs of national defense, the society has provided for every possible emergency. Aside from its activities in the proper operation of the Selective Service Act, it has tabulated all information and facts regarding medical facilities for meeting emergencies. Hospital bed capacity is known, methods for increasing this have been devised, emergency units to

meet catastrophies of every known nature have been organized, and means for transfer of chronically ill hospital patients, to increase bed space for emergency cases, have been planned and are ready for immediate operation. Through the information obtained from questionnaires sent out by the society and answered by the profession, all doctors have been or will be classified as to their availability for active service and their indispensability to the needs of the public.

Cooperating with the Brooklyn Chapter of the American Red Cross, over 450 members have volunteered their services to give first aid courses. Also with this organization, twenty-five physicians are working on the project of obtaining blood plasma to be stored and used in emergency. A committee on nutrition has been formed to inform the public as to type of food, obtainable in an emergency, which may be used in order that all persons may be fed properly.

Actively engaged in military and naval service at the present time are 152 of our members.

What further voluntary duties the society will be called upon to perform the future will demonstrate. As has already been shown, the time, effort and experience of its officers and members are at the disposal of the country and community. Dr. Frank H. Lahey, president of the American Medical Association, in his inaugural address stated, "It seems probable that as time goes on there will be greater and greater need for more help from the medical profession. There has been no group of men, in periods such as these, who have been more willing to serve than have the doctors. I feel sure that the demands to be made on us, which unavoidably and certainly must come in the ensuing months, will be met with satisfaction to our government and with credit to our profession."

It is true that much has been done to meet present emergencies and provide the service to the government and community that such emergencies demand. However, there are many other duties that the society has been performing for the benefit of the public over the years, and to date none of these activities has had to be sacrificed to absorb the additional responsibilities that have been mentioned. From his birth, yes, even from before his birth, the welfare of every citizen of the Borough of Brooklyn has been of deepest concern to every member of the society.

Maternal Welfare

Through the efforts of the Committee on Maternal Welfare care of the prospective mother has been standardized. Every doctor in the community has been circularized in order that he may know what organized medicine expects of him in the care of these women. Minimum standards have been agreed upon and results have already shown that proper care is being given in the vast majority of cases. The Committee has further compiled and distributed information on the care of the cardiac patient during this period of her life as well as advice on nutrition. Through its efforts, rules existing in most hospitals of our borough regarding compulsory consultation with specialists in complicated cases, are strictly enforced. These consultations are granted regardless of the patient's financial status. Truthfully, it may be said that no woman need approach the all important event of childbirth without proper preparation. Her station in life is no factor and the society does and will continue to provide her with information as to how she may obtain such service.

Statistics have already been quoted proving the value of this program in reducing the maternal death rate in Brooklyn. Its influence in reduction of infant death rate is noted in the annual report of the Department of Hospitals in the City of New York, where it is stated "The mortality rate for all newborns was 3.3; for newborns of mothers who had received prenatal care 1.5".

Child Welfare

Determined that this rate can be reduced further, the Committee on Child Welfare is now launching a campaign for the study of the problem, and through the cooperation of the Health Department is confident of the desired results. Resuscitation of the newborn, its care during the neonatal period, and proper care of the premature infant are but a few of the objectives. With an orderly study of these problems, followed by active institution of methods proved most satisfactory and effective, there is no doubt that the reduction of forty-five percent in infant mortality in the United States as noted in the past twenty years will reach greater proportions. The Health Department states that sixty percent of infant deaths occur during the first week of life and it is the desire to save many of these lives that prompts this work. This venture has in no way curtailed the enthusiasm of the committee membership for numerous other indispensable functions that it has assumed. Time will not permit enumeration or description of all; however, the following activities should be mentioned; the study and published results of such studies of the value of various vaccines, sera, diagnostic tests, etc.; examination of school children, study and care of tuberculous and cardiac children, and interest in and promotion of immunizing campaigns. Of the latter the most noteworthy is the campaign against diphtheria, the results of which have been most gratifying. The death rate from this disease from 1910 to 1919 averaged 83 per 100,000 children under fifteen. In 1940 it was 0.7 in the same group. Truly the public has become dependent upon the work of this committee.

Public Health

Carrying on from where the Committee on Child Welfare leaves off, the Committee on Public Health assumes its duties. Probably broader in its scope than any other committee of the society, this group of unselfish members devotes time and energy to public health problems. Cooperating with city and private agencies concerned with public health, they study in intimate detail every aspect of questions pertaining to the well being of our population. Much has been accomplished, especially in health education for the public; health examinations for high school students, control of cancer, dissemination of information on drugs, study of industrial health hazards, establishment of blood and plasma banks, aid for the hard of hearing and control of tuberculosis.

Regarding tuberculosis, a most noteworthy effort, meeting with great success, is being made. In cooperation with the South Brooklyn Medical Society and the Brooklyn Tuberculosis and Health Association, a case finding campaign is in progress. In all probability this

endeavor will do more toward control of tuberculosis in the Red Hook Gowanus district of our borough than any other means yet tried. It is hoped that the success of this will stimulate the rest of the borough to carry on.

Guarding the public health and preventing the spread of many epidemics is the Milk Commission. This body, in existence almost forty years (it was first appointed in March 1902), has functioned actively. Concerned only in the production of clean milk for consumption in Kings, Queens, Nassau and Suffolk Counties, it has concentrated its efforts on this problem. Milk to be certified must meet the rigid requirements of this committee, some of which follow: sanitary inspection of each farm producing milk, by a milk sanitarian once a month; bacteriological examination of samples of milk, as delivered to the consumer, twice a week; veterinarian examination of each cow monthly; and also monthly examination, by a physician, of all persons who have to do with the handling of cows or milk. The amount of time required in the performance of this work that is primarily for the safeguarding of the public is beyond the conception of those who have not had a part in it. The laboratory examinations in 1940 and 1941 alone numbered 27,098. The committee has worked earnestly and hard in the performance of a duty. Such effort is motivated by the consciences of the men whose responsibility it is to see that the raw certified milk consumed in this community is disease free and the safest and purest milk to be obtained. Their only reward is in knowing that they are saving the lives of countless infants and children.

Every member of the society contributes to the successful outcome of these endeavors. About four hundred are serving on committees and those who are not actively engaged in some aspect of this work are contributing financially toward its success. Of an expenditure of almost $100,000 a year, over ninety percent is provided by the dues and assessments of the doctors themselves.

Conclusion

Such has been the way of life of the Medical Society of the County of Kings and Academy of Medicine of Brooklyn. A way of life that has had for its chief interest the welfare of the public. Voluntarily and without protest it has accepted every duty that its rigid conscience has dictated and willingly has performed every task imposed upon it by country, state and county. Cooperating with the city in providing every possible safeguard for the public's health as well as the care of those who are ill, it has more than any other group given freely of its skill and services. In the municipal hospitals in 1940 were 6,645 unpaid workers of which 5,138 were physicians. This reflects the attitude of medicine toward its assumed responsibilities in the community. The public health program, briefly described in the foregoing paragraphs, accentuates the character of that attitude. In cooperation with the government the enormous defense and offense program is known to all. More and more will medicine be called upon to give freely of its services in these chaotic times. Sacrifices will have to be made and the profession stands ready to make them. Medicine is ready—it is organized; it does not know the sound of the whistle that means "quitting time" and it is rugged—never having been softened by the forty-hour week. As always, the profession stands by, anxious to answer every call, never forgetting that its chief duty is the care of the sick.

The mind of the profession has been governed by its conscience; it has had the freedom to act as that conscience dictates. Following this course the life expectancy of man in this country has been increased in the last century and a half from thirty-five to sixty-two years. Unhindered and unobstructed by agencies and influences that would change this "way of life" medicine will continue in its accomplishments and stand ready to serve with sympathy at the bedside and with courageous eagerness on the battlefield.

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FACTS ABOUT TWINS

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Interest in twins is as old as civilization itself, and stories about them are found in various mythologies. Since the true nature of twinning has only recently come to be understood, much superstition has been connected with the subject. Some of the primitive peoples, those living in Upper Guinea, for example, look upon the birth of twins as a good omen and as a result treat them with much consideration; other primitive tribes, for instance, the Igorots of Northern Luzon in the Philippines regard twins as evil, and in many instances kill them. Even in America queer notions about twins are still held. It is believed by some people that twins are less intelligent than ordinary individuals, that one of a twin pair is sterile, and that twins have the capacity for mental telepathy. These beliefs are the remains of primitive superstition about twins, and have no foundation in truth.

There are two basic types of twins, one-egg and two-egg. One-egg twins arise from a single fertilized egg and are thus identical in almost every respect. They are of the same sex, either both male or both female, and resemble each other so closely that they are extremely difficult to distinguish. Two-egg twins arise from two separately fertilized eggs, may be boy and girl, and are no more alike than ordinary brothers and sisters, except that they are born at the same time. Variations are one-egg and multiple-egg triplets, quadruplets, and quintuplets. Births of six babies at a time have also occurred, but are extremely rare. No sextuplets are at present alive. Reports of larger multiple births are apparently not authentic, and Professor Newman of the University of Chicago, a specialist in this field, does not believe that more than six children can be born at one time.

That twin births are not infrequent is shown by the fact that there are some one million eight hundred thousand twins living in the United States today. This number would be much larger if it were not for the

fact that twin mortality is about three times as high as that of singletons.

The frequency of twin births varies with different countries and races. Twin births in Belgium are 179 times as frequent as they are in Cochin China. Some students of genetics have suggested that twin frequency is a Nordic characteristic and that twin frequency in various parts of Europe may simply be a reflection of varying proportions of Nordic stock in the different countries. Another view has it that twin frequency varies with different climates. It is highest in the Northern countries and lowest in the south. Whatever the true reason may be, the fact remains that twin births as compared with total births are much more frequent among the Northern whites than they are among the Southern whites, or the yellow, red and black races. About twenty-five percent of the total number of twin births are one-egg or identical twins.

The frequency of the birth of triplets and quadruplets as compared with the total number of births is quite small. While there are quite a number of triplets in the world, there are not more than a dozen quadruplets. Quintuplet and sextuplet births are extremely rare. According to statistics, one set of quintuplets is born to every fifty-four million births, and one set of sextuplets to every four and one-half billion births. In other words, since there are about one million six hundred thousand births a year in the United States, the birth of a set of quintuplets is to be expected every thirty-three years, and the birth of a set of sextuplets is to be expected every three centuries. During the last one hundred and fifty years four sets of quintuplets were born in the United States, and two sets in Canada. Only six cases of sextuplets are on record.

The infant mortality of twins is much higher than that of singletons. At least twenty-three percent of twins die within the first ten days after birth; whereas only nine percent of the singly born die within this period. There are other reasons why twins may not be desirable. The evolution of the human organism has been away from multiple towards single births. Consequently, the human organism is no longer as well prepared to deal with multiple as with single births. This fact raises the mortality rate of mothers in multiple child birth. Then too, there is always the possibility that the twinning process may not be complete with the result that joined-together or Siamese twins are born.

Siamese twins consist of two individuals connected to a varying degree in the hip region. In spite of this physical union, however, Siamese twins are often two distinct individuals with different personalities. Thirteen sets of Siamese twins are listed. Most of them have been showpeople. For instance, the Siamese twins Chang and Eng, born of Chinese parents in Siam in 1811 were for a number of years featured attractions of Barnum's circus. When they became well-off they married sisters and took up farming in North Carolina, dying at the age of sixty-three. Another set of Siamese twins who married sisters were the Filipino twins, Simplicio and Lucio Godina, who died in New York a few years ago. One of the Bohemian Siamese twins, Rosa and Josepha, had a normal child. These sisters died in 1922. The most unfortunate thing about Siamese twins is that when one dies the other usually has to go too, although there are a few instances in which Siamese twins have been successfully separated surgically. The only Siamese twins now living in the United States are the Hilton Sisters, Daisy and Violet, who are thirty-two years old and seem to be quite healthy.

Very little is known as yet about the cause of twin births, except that in some cases twins seem to run in families. There are several ways in which one-egg twins may be distinguished from two-egg twins. The best single clue is, of course, facial resemblance. Other characteristics of one-egg twins are similarity in hair and eye color, shape of ears, size and arrangement of teeth, and shape and size of hands. Triplets, quadruplets and quintuplets are diagnosed on the same basis as twins.

It is believed that nobody in the world gets more publicity than the Dionne quintuplets. Some twenty-five million dollars is spent annually in Canada by tourists who have come for the express purpose of seeing the five little girls. Once a relatively poor district, Callander and its surrounding community have become prosperous. The Dionne quintuplets are the only ones who have lived to be more than a few weeks old. Although the intelligence of the quints is not above average, they should do well, considering the wonderful opportunities for education which are open to them. The personality of the Quints, not completely identical for all five, is charming and amiable. At their present age, the personality is not set, and will consequently be enriched by time and experience.

Since one-egg twins have an identical heredity, they have been used quite extensively in studies of the comparative influence of heredity and environment on different human characteristics. The usual method followed is to separate the twins and bring them up in different environments for shorter or longer periods. Then upon latter examination if the twins are alike in a number of characteristics, these must be due to environment. Thus by the use of this socalled twin-control method it has been found that blood groups, certain blood and taste reactions, eye and hair color, formation and shape of teeth, susceptibility to certain diseases, and sleeping habits, are largely hereditary.

Dr. K. J. Holzinger, a statistician of the University of Chicago, has worked out the relative influences of heredity and environment on a number of characteristics in two-egg twins in terms of percentages. These percentages also apply to ordinary brothers and sisters of more or less the same age. Here they are: Physical characteristics are determined about eighty percent by heredity and twenty percent by environment; intelligence is determined about seventy-five percent by heredity and twenty-five percent by environment; educational achievement is determined about fifty percent by heredity and fifty percent by environment; finally, motor activity and temperament are determined about thirty percent by heredity and seventy percent by environment.

The life stories of one-egg twins reared apart since early childhood are most interesting. We are told, for instance, that Edwin and Fred, a pair of one-egg twins who were separated early in life, did not meet until they were twenty-five years of age, or even know of each other's existence. Upon comparing their experiences, it was revealed that they had both received much the same education; both were electricians; both had been married the same year to women of about the same age; and both had a baby son.

We may end this article by naming some of the

famous and near-famous twins living today. This list is headed by August and Jean Picard, stratosphere fliers who from time to time have made the headlines with their exploits. Among the less famous twins are William and Chester Murphy, tennis players; Blaine and Wayne Rideout, middle-distance runners; Arthur and Alfred Gueppe, football players; the Bigelow twins, hockey players; Virginia and Mary Hopkins, swimmers; the Driscoll twins, one of whom is an oarsman at Yale, and the other a track athlete; and the Hogue twins, boxers. In the show business are Madeleine and Marion Fairbank, musical-comedy stars, and the Stroud twins, Clarence and Claude, radio entertainers.

On the whole, the majority of twins, like the majority of singletons, tend to settle down quietly in their communities and lead lives which do not place them in the glare of fame.

UNIVERSITY OF MANITOBA

APPENDICITIS IN TONSILLAR INFECTIONS

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It is well to appreciate the status of the appendix in cases of tonsillar infection, particularly in children, although I have seen acute appendicitis associated with or following tonsillitis in adults. I realize that one is treading on dangerous ground in failing to put all symptoms under one clinical entity. Let me emphasize that there is just as much risk one way as the other, that it, to make a diagnosis of acute appendicitis in those individuals who merely have abdominal symptoms associated with tonsillar infections, as to overlook a real appendicitis in a case of tonsillar infection. The moment you call the appendix the abdominal tonsil you establish a dangerous precedent. I have seen any number of tonsillar infections give rise to abdominal symptoms. This is particularly true in children.

I recently encountered a case of acute appendicitis associated with acute follicular tonsillitis, which I shall report and have since spoken to a number of men who have had a similar experience. Upon studying the literature, I am convinced that this condition occurs more frequently than we care to admit. It is worth while for us to be on guard so that we may not overlook its presence.

Case Reports

The patient, L. A., was a boy, eleven years old. He had always been in the best of health up to five weeks previously, when he complained of a sore throat, abdominal pain and vomiting. Three days before presenting himself for the present condition he began to complain of a "belly ache" and vomited several times. Examination revealed a temperature of 103°, a pulse rate of 96, associated with acute follicular tonsillitis and unmistakable symptoms of acute appendicitis, which were proved at operation. The appendix was removed and found to be markedly thickened and the serosa was hyperemic. The child made an uneventful recovery.

Another case is that of a boy, I. F., four years of age. This child suddenly developed outstanding abdominal symptoms, such as abdominal cramps, nausea and vomiting. The rectal temperature was 101°; pulse, 102. Physical examination of the abdomen presented a marked sense of resistance of the right rectus muscle, and tenderness was elicited over McBurney's point. A diagnosis of acute appendicitis was apparent. The tonsils appeared beefy red and were large enough to meet in the center. The patient was referred to the hospital for immediate operative intervention. The examining physician emphasized the tonsillar condition almost to the exclusion of the abdominal picture. He was, however, overruled. The child was promptly operated upon. The appendix was found to be abscessed, ruptured, and associated with generalized peritonitis.

I shall not enter into any theories as to whether this infection spreads through the hematogenous, lymphatic system, or by way of the digestive tract. I should, however, like to mention Rosenow's theory, that is, that in the early stages of acute appendicitis there is a streptococcal infection, and that later on these germs are replaced by other bacteria. It would not be amiss to quote references in the literature to the fact that acute appendicitis may follow infections of the throat.

Literature

Dr. Feer reports a simultaneous occurrence of tonsillitis and adenoiditis with appendicitis in 7.5 percent of his cases, and Richter in four percent of 172 cases. It has been reported by Dr. Evans, Hoos, Mantle, Marvel, Wahle and others that cases of appendicitis may occur in greatly increased numbers during epidemics of influenzal infections. Dr. Goiseffi reported an epidemic of ten or eleven cases of appendicitis occurring in the little town of Parenzo, with less than four thousand inhabitants, within a period of two months. All were confirmed by operation and all were associated with nasopharyngitis that was then epidemic.

I should also like to quote Dr. Joseph Brenneman, of Chicago, in a paper published in the *Journal of the American Medical Association* in December 1927. This is his summary: "I should like to state very emphatically that while nonappendiceal abdominal pains are much more frequent as an accompaniment of throat infections in children than are those due to an inflamed appendix, this fact should not at any time stand in the way of a diagnosis of appendicitis if convincing symptoms of appendicitis are present. Possibly, indeed, a simultaneous or preceding throat infection should make us rather inclined toward that diagnosis than away from it".

Conclusion

In closing let me emphasize my contention, that whenever there are abdominal symptoms associated with tonsillar infection, let us not blame the abdominal lymph tissue or look upon it as associated abdominal symptoms, but bear in mind the possibility of acute appendicitis, where surgical intervention may become necessary. On the other hand, we must not forget that we all encounter certain abdominal symptoms of short duration in tonsillar infections which may simulate acute appendicitis.

319 EAST SIXTH STREET

Sex Hormones in Cardiovascular Disease

T. C. Walker, of Beaumont, Texas, in a preliminary report on the use of testosterone propionate and estrogenic substance in cardiovascular disease (*M. Rec.* & *Ann.* 34:667 (Nov.) 1940) says that the sex hormones serve a useful rôle in the management of certain cardiovascular diseases. Warning is given concerning the use of testosterone propionate lest the exhilarating effect lead the senile cardiopath into dangerous overactivity. Five patients with angina pectoris were treated with sex hormone. Four were definitely improved, subjectively, in that there was an increase in emotional and exercise tolerance and decrease in severity of pain with increase in strength. Four patients with paroxysmal nocturnal dyspnea were improved with male sex hormone therapy. Ten of fifteen patients with potential heart failure showed definite gains in strength and exercise tolerance. In three of the six patients oscillometric readings showed a significant increase in peripheral circulation. There was also a sustained lowering of the blood pressure in some hypertensive individuals. Three male patients had cerebrovascular accidents while under male hormone therapy; one died immediately, the other two lived and treatment with male hormone was continued. Improvement in these two (both hemiplegias) did not appear to be either accelerated or impeded by male hormone therapy. The sex hormones may have been instrumental in precipitating the vascular accidents.

Sulfathiazole Therapy in Gonorrhea

Of the sulfonamide compounds so far studied, it appears that sulfathiazole is more effective and less toxic in the dosage used for the treatment of gonorrhea than the other sulfonamides. Adequate dosage of this drug consists in the administration of twenty grams, or three hundred grains, over a period of ten days. The dose taken daily by the patient is one tablet of seven and one-half grains every four hours for four doses. No local treatment of any type is necessary. To avoid overdosage, only enough sulfathiazole tablets are prescribed to last until the patient's next visit. With a limitation of the total dosage, chemical examination of the blood or urine is unnecessary.

Serious toxic manifestations, such as agranulocytosis, hemolytic anemia or hematuria, necessitating stoppage of treatment, are rarely encountered. Mild toxic manifestations, such as slight gastrointestinal disturbance and dizziness, are occasionally produced but rarely require interruption of treatment.

Ordinarily, marked improvement in the patient occurs in from forty-eight to ninety-six hours. In men, burning and discharge are reduced. The voided urine is clear or less cloudy. In women, the appearance of the cervix improves and mucopurulent discharge diminishes. Usually it is not possible to obtain positive spreads or cultures after two to four days of treatment. The treatment as described should be continued for the full ten days even if the patient appears cured in less time.

Approximately eighty percent of patients treated with sulfathiazole are cured. If the patient is not cured within ten days of treatment, stop sulfathiazole for three weeks and then repeat the course as before. In the interim local therapy with mild antiseptics should be given. In women, acute gonococcal salpingitis requires treatment in bed. Two grams of sulfathiazole per day as described is a suggested form of oral treatment. Fever, pain and tenderness almost or entirely disappear in from forty-eight to ninety-six hours in most cases. Pelvic or Bartholin gland abscesses must always be treated surgically.

The value of sulfathiazole in treating gonococcal infections is recognized. However, patients should be seen often and treated with good clinical judgment. Consultation is desirable in the presence of complications or failure to react promptly and favorably. Routine serological examination for syphilis on all patients is recommended.

A New Remedy for Black Fever

Thousands of children will be saved from a lingering death by black fever as the result of the discovery of a new drug, diamidino stilbene, by British research chemists.

Black fever is prevalent on the southern and eastern coasts of the Mediterranean, in Morocco, Turkey, Yugoslavia, Palestine, the Sudan, and even as far afield as India, Malaya and South America. Most of its victims are children between the ages of one and three, and in some areas as many as eight in ten of them die.

A closely related drug is being tried in cases of sleeping sickness in West Africa, and preliminary results show that these "diamidine" compounds are effecting rapid and spectacular cures.

The disease, of which there are various types, is caused by the infection of the spleen with a body known as Leishmania donovani. Previously treated with antimony, experiments have shown striking results from the new drug. It was developed by Dr. Ewins, of May & Baker Ltd., after long research by Professor Warrington Yorke, of the Liverpool School of Tropical Medicine, and Dr. H. King of the National Institute of Medical Research, had shown that diamidine compounds had important effects upon the organism which causes the disease. The discovery is thus a triumph for the collaboration between British commercial pharmaceutical concerns and academic research workers.

The new drug, which gives its better results with a fiftieth of the dose in a fifth of the time and at a tenth of the cost of the other drugs, is injected into the veins, the dose being calculated on the body weight of the patient. It must be administered slowly to avoid a fall in the blood pressure.

One of the first cures was that of a Hindu seaman aged twenty-six, from Calcutta, who was given a total of 400 mgm. over eight days and was able to leave hospital six weeks later.

In another case of Sudanese natives treated at Khartoum, the medical officer reported that after treatment his patients "had been clamoring for their discharge from hospital, and in fact had used it only as a sleeping place from which they issued daily on a round of revelry and generally beating the place up".

The doctor added, "While I personally pay more attention to weight records, blood counts and spleen punctures, the fact that these patients were able to behave in this fashion is regarded locally as convincing evidence that they have been restored to health."

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MINOR ELECTROSURGERY

RICHARD KOVACS

New York, N. Y.

Electrical energy is an obedient servant in competent hands. It is now employed in many phases in the art of healing, for relief of pain, stimulation of tissue repair and also in diagnosis. It is also successfully applied for the destruction of new growths and diseased tissue and for cutting through normal tissues with minimal bleeding. In the strict sense of the term the electrocautery (the employment of metal tips or wires heated by the lighting current) and electrolysis for the removal of superfluous hair and for destruction of diseased tissue also come under the heading of electrosurgery. Gradually established modern usage has, however, restricted the term of electrosurgery to the surgical application of high-frequency electrical currents.

The principle of action of all high frequency electrosurgical methods is an intense concentration of current under a small active electrode; this results in a destructive heat effect which leads to instantaneous coagulation of the albumin of the tissues. The extent and form of tissue destruction varies with the type of current and the technique of application. Heated metals in the form of the electrocautery have been used for a long time for the destruction of superficial tissues and malignancies but their action is superficial and the heat cannot be maintained at an even temperature; if they are too hot, normal as well as malignant tissue is destroyed. With high-frequency electrosurgical apparatus the scalpel or needle remains cold all through the operation, the heat generated is in the tissues themselves and is always under perfect control of the operator.

The three major varieties of electrosurgical effects are: 1, Electrodesiccation, the simple drying of tissue on the surface by small sparks; 2, electrocutting, fine coagulation along the line of cleavage; and 3, electrocoagulation, tissue coagulation around the operating electrode. The Oudin current from spark gap apparatus serves best for desiccation, while tube apparatus is essential for "cutting". For coagulation either type of apparatus can be used.

The employment of electrosurgical methods can be considered from two viewpoints, that of the general practitioner and that of the general surgeon or specialist. This article is written from the point of view of the general practitioner for whom the skillful use of electrodesiccation, based on accurate diagnosis, offers the possibility of treating a large number of minor surgical conditions with practically no bleeding, very little pain and good cosmetic effect.

Principle of Electrodesiccation

In electrodesiccation only one electrode is employed, a steel or platinum needle of varying thickness, held in an insulating handle, with a make and break arrangement, or still better, with a foot switch. It is connected to the single high-voltage (Oudin) terminal of a spark gap apparatus and held in contact with or at a slight sparking distance to the area to be treated. The current employed is one of comparatively high voltage and low amperage and its oscillations are damped. When this current is applied to the tissues at appropriate strength and duration, drying and shrinkage of the parts occur, due to the evaporation of the water content of the cells. A dry mass remains which can be curetted away or left in place to slough off in due time.

Following electrodesiccation tissue cells are shrunken and shriveled, their nuclei condensed and elongated, with a suggestion of cell outline, the whole assuming a mummified appearance (mummification necrosis). Since this mode of cell death is associated with very little degenerative change and scant disintegrated material, there is but a small amount of fibrous tissue as an end-result. This explains the good cosmetic results and the fact that the neighboring healthy tissues are spared the devitalization resulting from the formation of abundant contractile fibrous tissue.

Electrodesiccation is the method of choice for the destruction of superficial lesions of small size, where good cosmetic effects are essential and also where the delicacy of the tissue makes surgical intervention difficult.

Apparatus for Electrodesiccation

The spark gap type of apparatus is the most desirable for both heavy and fine electrodesiccation because it furnishes a high voltage drying spark applicable from a single terminal of the apparatus. It may be possible to produce a coarse desiccating effect by bipolar tech-

nique from a tube apparatus equipped with an extra resistance coil using a large dispersive electrode at one terminal and a fine needle from the other, but the procedure is not very satisfactory. There are new small modern desiccating spark gap units available which furnish a heavier current suitable for sparking most surface growths and a very fine current suitable for insertion of a very fine needle within the tissues, such

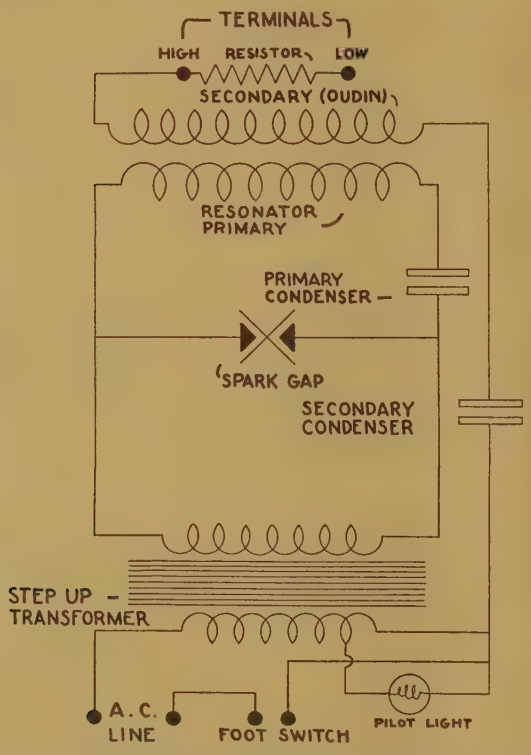

FIG. 1.—Wiring diagram of small unit for electrodesiccation, showing two separate terminals to connect electric needle for high power desiccation (new growths and diseased tissue) and for low power (epilation). *(Courtesy of the Birtcher Corporation.)*

as needed for destruction of hair roots in hypertrichosis. Fig. 1 shows wiring diagram of such a compact apparatus with the "high" and "low" outlets serving for the insertion of the combination conducting cord and needle holder.

Technique of Electrodesiccation

There are only a few simple rules to observe in the performance of electrodesiccation. The part to be treated should rest on a nonconducting support, preferably a wooden table. The operator should be seated and have good support of the arm holding the desiccating instrument. There should be good light and the controls of the apparatus should be within easy reach if one is working alone. The use of a separate foot switch is more convenient. The conducting cord should be heavily insulated in order to prevent unpleasant leakage of the current to the operator's hand.

After the current flow to the apparatus has been started (the main switch being closed), the controls are opened to the desired strength. The physician must learn to produce a minimum sparking at first and increase current strength, if necessary, according to the size and consistency of the growth. Since there is no meter in circuit to measure the current strength, the operator must begin with a minimum spark and increase its intensity to adequate requirement. The needle is held just far enough from the lesion to produce a minute spark. As soon as the current has flown at sufficient strength a whitish discoloration appears, showing that the tissue has been dried out; the needle is then moved to the adjoining surface. The strength of the current is regulated according to the size and density of the growth or diseased area. The rule is to use as little amperage (current volume) as possible and work more on the spark-gap control; this tends to keep down current volume and prevents excessive scar (keloid) formation.

Current strength to destroy growths of varying size must be estimated. When the lesion is superficial the current is best delivered through a short air space; when of medium size the needle is brought in contact with the tissue to be destroyed; when the growth is large the needle is inserted into the tissue. The length of flow is the other factor in determining the extent of destruction.

The operation is ended when the whole growth turns white or when, the needle being placed in the lesion, the spark lights up like flame in the tissue, showing that the entire lesion has been dried out. A dry shrunken appearance of the treated area as if receding from the surrounding normal structures is also a sign of sufficient treatment. In case of doubt whether all pathological tissue has been destroyed, one should remember that it is easy to make up for insufficient dehydration at the time of the first or later follow-up examinations. Too extensive sparking may cause slow-healing ulceration.

Local anesthesia is usually not necessary when treating small skin lesions or cervical erosions; in cases of more extended areas, local anesthesia is essential. Small pedunculated growths may be almost painlessly treated by the following technique: Grosp the base with fine forceps and apply the desiccating current to the top of the growth; the forceps grounds the surplus current through the operator and the growth shrivels up without any painful sensation and can be removed without bleeding.

At the end of the operation small growths and other pathological tissue may be left in situ to dry off and separate spontaneously. The sterile dry scab usually affords protection and insures better cosmetic result. Most of the growths, both small and large, are, however, best curetted off immediately. The raw area should be lightly sparked over to prevent oozing and infection and then may be painted over with seven percent iodine or mercurochrome. A small neat adhesive plaster dressing will further protect the area. Over areas of the face where a perfect cosmetic result is desired it is better to apply a bland ointment and a small gauze dressing, for this obviates injury to the sensitive epithelium when an adhesive plaster dressing is pulled off. A sterile dry dressing should be employed over any larger area of destruction.

Patients should return for re-examination as after any other surgical procedure. Areas previously not entirely desiccated can be thus more thoroughly treated and subsequent new growths recognized early.

Epilation by Electrodesiccation

The most recent employment of high frequency desiccation is that for the removal of superfluous hair. Destruction of hair follicles in hypertrichosis requires an apparatus that will produce a delicate desiccating current. The necessary accessories are a very delicate needle in a suitable holder, a foot switch and a pair of spring forceps and of course good natural light or artificial light with an adjustable reflector and for operators of poor eyesight some special magnifying device.

The essential step in the procedure is the ability of the operator to insert the delicate needle tip without any force. Beginners should start with gross hair; if it is too long and interferes with the introduction of the needle it can be clipped. Most hairs stick out at a slight angle to the skin surface and the operator should insert the needle parallel to the hair shaft. With a little practice under adequate light this can be easily learned by persons with good eyesight and a steady hand. In some cases seizure of the hair with the forceps will help to guide the needle into the follicular opening. The depth of insertion should be to the point where the needle meets with slight resistance; this is about one-eighth inch or even less with smaller hairs and almost one-fourth inch with gross hairs. Patients usually do not mind the insertion of the needle at all.

FIG. 2.—Papilloma of tongue before desiccation.

FIG. 3.—Appearance of tongue after desiccation.

(*Courtesy of Lea and Febiger*)

As soon as the needle electrode is in proper position, a slight pressure on the foot switch will start the current flow and it should be kept up for only the count of one—the space of a second. It is important that the foot of the operator be comfortably placed, though only a slight pressure of the big toe or the ball of the foot is needed. The patient should be told that only a slight sting will be felt when the current flows. After the first second, the foot should be taken off the switch and immediately depressed again, repeating again the procedure at the count of two, three, four, up to eight to ten seconds.

At the close of the treatment period with skillful technique there is hardly any change except slight blanching and the hair can be lifted out easily from the follicle, with its root plainly showing. There is very little pain in the average patient, for the gentle current itself brings about anesthesia around the follicle. Definite pain and slight sparking around the needle tip will occur however, if an absent-minded operator keeps his foot on the switch while inserting or withdrawing the needle.

Small thin hairs may need only three to four seconds for complete removal; if in coarser hairs, or hairs with an irregular root, gentle pulling with the forceps does not bring out the hair easily, it is advisable to reinsert the needle and add a few seconds to the treatment time. Never use force to pull out a hair.

In proceeding with the operation care must be taken not to take out too many closely grouped hairs because of the desire to keep the local postoperative reaction at a minimum. Occurrence of capillary bleeding is a sign that the follicle has been punctured at one place. It usually stops on very slight pressure and has no aftereffects.

In contrast to the inflammatory reaction and scab formation around each hair follicle treated by electrolysis with skilled high-frequency destruction there occurs, as a rule, only slight reddening around each follicle and the formation of a small scab. Patients should be warned to let scabs separate voluntarily, as the cosmetic result is better.

Scope of Minor Electrosurgery

Electrodesiccation in skilled hands may be employed in removal of warts, moles, small congenital angiomas, mollusca, congenital angiomas, mollusca contagiosa and tattoo marks. Epilation or removal of superfluous hair by electrodesiccation, as described, is now an established procedure.

Other locations suitable for electrodesiccation are: Mucous membranes, papillomata and other benign growths of the mouth, leucoplakia, selected cases of infected tonsils and other minor nose and throat conditions. Another large field of applicability is, in gynecological conditions such as skenitis, urethral caruncle and other benign vascular tumors in urethral orifices, condylomata of the vulva, vaginal cysts, cervical cysts, and erosions, nabothian cysts, cervical polyps and other benign growths of the cervix. In some proctological conditions, as papilloma, selected cases of external hemorrhoids, anal fissures, pruritus ani electrodesiccation is also quite useful.

The possible dangers of minor electrosurgery are over treatment in enthusiastic hands causing too extensive destruction, serious secondary hemorrhage and disturbance and delay in wound healing. The general medical practitioner must stay away from attacking possible malignancies which he cannot handle effectively. Under inefficient treatment senile keratoses may undergo recurrences while in cases of black pigmented moles such irritation as a rule brings on extensive metastasis and death.

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2 EAST EIGHTY-EIGHTH STREET

Fluoroscopic Localization of Foreign Bodies

Francis Blonek (*Radiology*, February, 1942) says that for the roentgenological localization of foreign bodies only such methods are suitable as have sufficient accuracy and are also easy and expedient. For advanced and mobile roentgenological stations only fluoroscopic methods are adequate. Recently there were built several mobile x ray field units, provided with special appliances for an expedient localization of foreign bodies. Although these units are practical, they have one common disadvantage: they will not be always and everywhere available. The author presents a method which, while sufficiently accurate, is simple and rapid, and is adaptable to any kind of horizontal fluoroscope.

THE INTERNIST AND PHYSICAL THERAPY*

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The topic I wish to present is the relationship of the internist to physical therapy as it exists today in our community, and probably also in other parts of the country. Since I have been engaged in the practice of internal medicine for over forty years, and also was instrumental in introducing physical therapy into this city some thirty years ago, conducting such a department in the Diagnostic Institute during this period, I hope I might be considered competent to discuss this subject.

It has been my privilege during the past four decades to observe many advances in medicine in general, such as the tremendous progress brought about in the diagnosis and treatment of disease by the discovery of x rays; the introduction of numerous valuable diagnostic methods which have revolutionized the various specialties in medicine; the discovery of numerous diseases formerly unknown; of many valuable drugs highly effective in the treatment of a variety of disorders previously considered incurable; the discovery of various vitamins and their effects, functions and relationships to metabolic phenomena; the solving of numerous endocrine problems which has raised endocrinology from obscurity to an almost exact science. Many other innovations, too many to be mentioned here, have enriched medical practice during these few decades.

Advances in Physical Therapy

Physical therapy also has made tremendous strides during this period. The great advances made in physics led to the discovery of numerous physical modalities with their physiological effects upon the human organism, their application and usefulness in numerous disorders. The invention of new forms of apparatus and the great interest exhibited by the public in physical therapeusis since the last World War have created a greater demand for such service from the medical profession. All this has led to great expansion, so that today physical therapy is recognized as a specialty, with numerous organizations established throughout the land to expand its knowledge. This branch of therapeusis has indeed become a tremendously valuable addition to the physician's armamentarium.

But is its real value really fully recognized today by all internists? Is its usefulness in the treatment of numerous disorders really appreciated? In answer to this, I regret that I am obliged to state that an attitude of indifference to physical therapy is still rather general among internists, and that it is frequently employed in a deficient and improper manner. It seems that physical therapy is still but little understood and too infrequently employed, especially in the treatment of chronic internal diseases. Many are neglecting this invaluable remedy, much to their own harm and to the misfortune of the patients, who otherwise could be restored to better health and relieved from many incapacitating symptoms.

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Historical

Physical therapy is not a new method of treatment; it is old and well tried; indeed, it is one of the oldest medical measures. Many centuries ago, long before drugs were utilized, man tried to free himself from his pains and aches by physical means. Even primitive man in the distant past, at the lowest known cultural level, possessed a knowledge of heat and cold, of rubbing and baths, of mineral waters; these he utilized in bringing up his young and developing their bodies, so that they might pursue their wild life and thus maintain their existence. Even animals are led by intuition to seek relief from pain by resorting to heat, cold, rubbing and similar physical means. Physical therapy is therefore not a recent procedure. Many centuries ago in Greece and Rome physical therapy was practised extensively; bathing, gymnastics, massage and diet were prescribed not only for the development of sound health, but also in disease. The temples of Esculapius scattered throughout Greece were genuine sanitaria; they were situated in sacred groves, near mineral, thermal and sea waters, in sheltered regions. They were in the charge of priests, who in those days, as well as in later centuries, were functioning as healers of the sick. These priests not only understood the value of air, food, rest, exercise, sleep and psychic conditions, but they also laid down simple and rational rules as useful even today as during the time when they were first proposed. They recommended hydrotherapy in a great many conditions; the methods of administering cold baths, rubbing, showers; they prescribed many dietetic regulations which survived for a long time. Public baths were built in all Roman settlements; wonderful establishments were provided for gymnastics and social entertainment; mineral waters and hot springs became esteemed. And so throughout the centuries physical therapy assumed a most important rôle in all Europe. In Germany, especially, since the seventeenth century, hydrotherapy has practically been considered a panacea for the cure of numerous chronic disorders; there it has received its greatest impetus, much greater than in any other part of Europe. It was there that I received my first impression as to the true value of physical therapy, which induced me to inaugurate it here in connection with my own work as an internist.

In the United States physical therapy made its greatest strides after the last World War, for at that time we were presented with the opportunity of learning what physical therapy might actually accomplish. Vast numbers of injured and maimed soldiers were coming from every front, and there were powerful motives to return these disabled men back to the armies in the best possible form with a minimum of delay; our government also made every effort, economic and other, in that direction. The results achieved in hospitals and reconstruction camps during and after that war were indeed marvelous. The meagre number of physiotherapists at that time were eager to do their utmost under the existing circumstances and with the apparatus available. Numerous physiotherapy aides were

trained and gave excellent assistance to the medical men. Great credit is due to these physiotherapists, physicians and technicians, who were so faithful to their task and specialty and thus enabled physiotherapy to reach a high standard of perfection.

Present Status of Physical Therapy

But what is the situation today in our community? Is the medical profession, as well as the general public, really benefiting here fully by the demonstrated helpfulness and value of physical therapy? The answer seems to be not yet. This appears to be due to a number of causes. In the first place, there is apparently a scarcity of internists with an adequate knowledge of physical therapy, for most medical graduates have little or no training in this subject, because of lack of instruction in this branch of medicine in most medical schools. It seems deplorable that most of our medical colleges and institutions fail to teach undergraduates the subject of physical therapy. If colleges were to include physical therapy in their curricula, the students of medicine on graduation would understand physical methods and their importance in therapeusis; they would then utilize these methods in numerous disorders in their practice as internists.

In the second place it is desirable to spread the gospel of physical therapy *now* among physicians already in practice. It is true that numerous practitioners have already acquired some physical therapy appliances and are utilizing them in the treatment of some of their cases; but of what value may this be? In the successful treatment of a case the selection of the correct appliance and proper modality is obligatory, as well as its accurate application. The inaccurate use of an appliance or the selection of an improper modality may be fatal to success; incorrect dosage may be very harmful; the psychological response may be disastrous. The therapist must be thoroughly familiar with the potentialities of each of the appliances used, for after all physiotherapy is a skilled art which demands training and natural aptitude. The practitioner should be made aware of these facts; he should also understand that physiotherapy is indeed a specialty, and that it is just as wise to consult the physiotherapy specialist in certain cases as he does other specialists, when the case demands it. There seems to be a lack of teamwork between internists and physiotherapists, which deserves correction.

In the third place, there is a lack of expert physiotherapists, as is demonstrated here in Brooklyn, where their number is insignificant as compared with the number of specialists in every other branch of medicine.

Fourth, many institutions caring for chronic invalids seem to lack physiotherapy departments or appliances. Indeed, here in our community, with almost fifty hospitals, only about ten have physical therapy departments under the management of physiotherapy specialists; and even some of these are not as fully equipped as may be desired. We feel that every hospital is as much in need of such a department as of a surgical division, a medical department, an operating room, a laboratory or any other facility for treatment of the sick. This especially applies to institutions caring for chronic cases and industrial injuries in which physical therapy is most essential.

Some of our hospital institutions, I am informed, object to the establishment of a physiotherapy department, one reason being because of the cost. While it is true that the organization of a high-class physiotherapy department is quite expensive, it should nevertheless be remembered that all other departmnts are just as costly, and that the welfare of the patient is of much greater importance than the initial cost or maintenance of a department. Besides, a department of physiotherapy is not generally a loss; indeed it usually is a profitable investment yielding good returns; furthermore, the moral satisfaction of successful treatment is also an asset. Every hospital should consider a physiotherapy department just as indispensable as any other department, such as surgery, medicine, diagnosis, etc.

Fifth, another important reason why physiotherapy is not used more extensively by some of our internists is because these men still persist in ignoring it in spite of its beneficial effects. It is admitted that physical therapy is not a panacea for every disease; yet, in chronic disorders, especially where drugs have been found ineffectual and where every possible curative measure is demanded in rehabilitating the patient, physical therapy is almost always indicated. It holds a unique place among remedies because it permits of repeated applications and offers numerous ways of restoring a patient to a normal condition. It develops forces which stimulate healthy life processes, forces which in subnormal or abnormal health are fixed by the same dynamic mechanism of cells and tissues but are active under normal conditions. Yet these forces are frequently ignored by some internists.

Irregular Practitioners

The above mentioned conditions lead to a situation where many chronic sufferers, instead of seeking relief from the regular profession, take recourse to treatment by various irregular practitioners employing physical therapy. The failure to provide such therapy by our medical men fosters the multiplication of pseudo-scientific practitioners, of various cults, of all kinds of healers, many of which avail themselves of the riches we ignore. We must not blame the patient consulting one of these irregulars when he fails to find relief through his regular physician, when one medication after another is tried unsuccessfully. He then seeks relief from the unorthodox; he appeals to the osteopath, chiropractor, naturopath or similar practitioner, all of whom employ one or more physical modality; they all use some kind of an apparatus with knowledge which is usually incomplete. If the patient obtains even slight benefit from any of these practitioners he is likely to proclaim the good results everywhere, the more so if he receives previously no satisfaction from a regular physician. This, of course, gives the irregular practitioner undue prominence and puts him on even a higher pedestal than the regular practitioner; it also gives him a chance to acquire an active and more prosperous practice which really belongs to the regular physiotherapist.

On the other hand, if the patient does receive some kind of physical treatment from his regular physician, a general practitioner and internist and not a specialist, does he always get the best obtainable result? Is it possible for an everyday general practitioner and internist to offer the patient as good results from physical ther-

apy, from a particular apparatus, as may be obtained through a physiotherapy specialist? Usually not. Many a physician utilizing a diathermy or ultraviolet apparatus or some similar aid has but little real training in its use and but little knowledge of its actual possibilities; frequently his information is derived from a sales agent or manufacturers' pamphlets; hence the effects can not always be the best. On the other hand, some physiotherapy technicians and other types of practitioners are often better acquainted with the same apparatus, for they are trained in numerous schools engaged in instructing these technicians and cultists; unfortunately, these latter assume the functions of physical therapy specialists with responsibilities definitely belonging to the medical man. Hence the number of cults and practitioners of physical therapy is continually increasing, instead of diminishing as it should be with the spreading of education; the number of patients who resort to these practitioners is also increasing with the result that the irregulars deprive the regular physiotherapy specialists of a practice they so richly deserve.

Remedial Measures

Before we may hope to cut off from the consultation rooms of irregulars the streams of chronic sufferers, we must realize that the responsibility for the existing situation is ours. Before we can hope to command the full confidence and respect of the public, we must make it realize that it can obtain the best of treatment only from the regular physician. We have allowed such a situation to develop and we can best abolish it by making use of our physical remedies in a thorough, intelligent, scientific and consistent manner.

This can best be accomplished as follows: First, if medical schools would organize departments of physical therapy with theoretical teaching and practical demonstrations for their undergraduates and thereby graduate men familiar with physical therapy; second, if hospitals would establish well equipped physical departments in charge of physical therapy specialists and thus offer an opportunity to their interns and resident physicians to learn and observe the practical applications and uses of physical therapy; third, if the internist or general practitioner before acquiring some physiotherapy apparatus would first thoroughly familiarize himself through lectures, postgraduate work, special classes and physical therapy society meetings with the scientific aspects of the instrument he acquires, its best method of application, its capacity, its physiologic responses and other features before such instrument is employed by him. It will also be well for him to understand that in certain instances it is desirable to consult a physiotherapy specialist for advice as he now consults an ophthalmologist, surgeon or other specialist; fourth, the public would become enlightened as to the possible ill-effects of physical therapy when used by the ignorant or unscrupulous; that it may be just as harmful in the treatment of a case as inappropriate drugs. The public should be encouraged to consult specialists, men trained in medicine and physical therapy, rather than seek help from irregulars, ordinary technicians and cultists.

Trained technicians have an important place in our community and are indeed valuable. Every physician cannot very well apply massage, hydrotherapy and various other modalities of physical therapy personally; these must necessarily be relegated to technicians, who should be made to understand that their function is to cooperate with the regular physician or specialist, and that they are not to undertake treatment or supervision of cases themselves, but apply their skill under appropriate direction.

Conclusions

It is the function of our County Medical Society to guard the health of its community by stimulating greater medical knowledge, supervising all medical problems and thus assure to the sick the best treatment administered in an ethical manner; also, to protect the profession against unqualified practitioners. It is the function of our Section of Physical Therapy not only to enhance the study of the subject, but also to supervise and regulate the administration of physical therapy in this community, so that those in need of it may get the best that science has provided through this method of therapy. This function is an important one. It certainly is most important in these most trying times when the health of every individual must be conserved and his maximum usefulness to society sustained. Strenuous efforts are indeed demanded in this direction, but we medical men are trained to make special sacrifices and lend our best efforts at all times, especially now for those aims for which our nation is at work.

Let me express here our common hope that the war may soon be speedily concluded and that permanent peace throughout the world may be soon established; let me also express my hope that in the meantime, with the cooperation of every member of this section, we may be enabled to remedy the problems we are confronting; that valuable changes in the status of physical therapy in this borough may be accomplished and that we may spread the gospel of usefulness of physical therapy, not only among our own professional colleagues but also among all the people.

867 ST. MARK'S AVENUE.

High Voltage Irradiation of Accessible Cancer

George P. Sims (*Radiology,* December 1941) says that low voltage roentgen treatment of malignant lesions of the skin, mucous membrane, and underlying structures has been attended by a relatively high percentage of early and late recurrences. Good results with low voltage have been reported by a number of workers with low voltage lightly filtered radiation, and the author believes it is possible that the failures may have been due either to the use of massive caustic dosage with x rays of low voltage and little or no filtration, or to the employment of too small fields. The higher voltage technique, he says, was evolved from observation of biological effects and clinical results not only in skin cancer but in treating socalled plantar warts. Many malignant skin lesions can be destroyed by various destructive agents, provided the technical management is such that the lethal action on the tumor destroys the cells at the base of the growth, as well as those at the periphery, without adversely influencing normal tissue. With roentgen irradiation, the field of exposure must not be too large when heavy dosage is employed. In his experience, roentgen treatment with high voltage (200 kilovolts) and medium filtration had given better results, in the more advanced cases, than low voltage therapy.

THE EARLY USE OF ELECTROTHERAPY IN BELL'S PALSY

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The electrical treatment of Bell's palsy has been the subject of a great deal of misunderstanding both on the part of the physical therapists and the neurologists who generally see cases referred to them by general practitioners. The matter of diagnosis of Bell's palsy is not difficult but the paralysis too frequently is considered to be a pathological condition of the facial nerve. If this were the fact, these patients would not respond so quickly to the treatment described.

The dictum of the neurologists is that Bell's palsy cases should not be treated for five or six weeks. At the end of this time there is an undoubted pathological condition in the nerve which requires appropriate treatment, but why wait until this pathology has developed? It is impossible for a real pathological condition to occur immediately in conditions that have a sudden onset such as Bell's palsy. The history of these cases is that the patient may or may not have had some prodromal symptoms but the large majority of them have a very acute onset. I have been present and seen facial paralysis come on suddenly while talking to two individuals. It was just as though they had been shot. Both these cases seen happened when the patients were sitting in a draft in extremely cold weather and the face suddenly twisted to one side. In many cases the patients wake up in the morning with paralysis.

Immediately after the paralysis it is impossible that there can be a true pathological change in the nerve. Paralysis is present but it is due to a pressure upon the nerve by congestion of tissues anterior to and below the external auditory meatus.

An experience of over three hundred cases has shown that if this congestion is immediately relieved, the paralysis quickly disappears. I have seen many cases within the first forty-eight hours and the large majority of them has cleared up within ten days when treated by electrotherapy.

Why wait until a true pathological condition exists? This applies to the treatment of Bell's palsy as well as a number of other acute conditions of peripheral nerves that would respond to immediate electrology. There are some neurologists who believe that Bell's palsy will go by itself. This is true of any noninfectious disease, but why wait and run the chance of prolonging the embarrassing paralysis when it can be avoided by prompt treatment? The immediate administration of decongestive procedures gives partial relief with the first application.

I have found that when the paralysis is of more than three weeks' duration, it is necessary to use galvanic stimulation of the nerve and treat the condition as a true neuritis and not a paralysis due to pressure alone.

Method of Treatment

In the early cases, even when there is some slight pain, the method of treatment that has been found most effective is as follows:

Heat in the form of photothermy is applied to the face for ten minutes. The most efficient source of photothermy is an incandescent bulb in a reflector that does not focus the rays.

The second modality is local diathermy administered by means of a conventional diathermy machine. It is not necessary nor is it rational to use short wave diathermy because there is no infection present and besides it can not be localized as can conventional diathermy when administered according to the technic which I described in 1924 and named "grounded autocondensation." With this technic the patient sits or lies on an autocondensation pad and is connected with one terminal of the diathermy apparatus. The other terminal is connected with the plates on the under side of the pad.

Six or seven hundred milliamperes of current are given to the patient and the technician or doctor places a finger anterior to or below the patient's ear on the affected side, thus grounding the high frequency current and creating heat in that locality. The maximum amount of current that the operator can tolerate without burning the finger will not be sufficient to burn the patient. This technic is the ideal way to apply diathermy to any small area.

After ten minutes of this grounded autocondensation, the static brush discharge is applied. This is the use of the extremely high voltage, low amperage static current given to the patient through a deKraft blue pencil applicator. The static brush discharge is without question the most powerful method of decongestion that is known. In fact when it is applied to a black eye, the swelling of the tissues can be seen to go down during the treatment.

This treatment should be started in the first twenty-four hours and may be given daily. It has been known to clear up cases in two or three applications when instituted immediately.

Of course the possibility of spontaneous relief of congestion and the subsequent paralysis must still be admitted, but the writer has never heard of a spontaneous relief of complete paralysis of all three branches of the nerve.

If the symptoms of paralysis of one branch of the nerve persist longer than the others, it is then necessary to use the static wave current which also causes decongestion and at the same time by exercising the muscles in the area to which it is applied, causes marked increase in nutrition.

All patients are told to chew chewing gum and exercise in front of a mirror at least three times a day as soon as any motion at all returns. Massage is sometimes given as well. This should be a lifting massage and is more necessary in the cases that have lasted more than two weeks. Besides this patients always should be instructed that whenever possible to place their hand on the affected cheek while sitting at a table or in an armchair and support the muscles of the face in that manner.

When cases have been kept from treatment for three or four weeks, then the treatment found successful has been photothermy, massage and motorpoint stimulation with the galvanic current, the negative being applied to the back of the neck and the positive to the motorpoint electrode. This treatment should be per-

sisted in for months in old cases and hope should never be given up. Something can always be accomplished no matter how old or total the paralysis is and even cases of paralysis following injury to the facial nerve during mastoid operation can in time be cleared up.

It is hoped this communication will convince the profession of the importance of *early* treatment of Bell's palsy. It is not fair to patients to wait until a true pathological condition has occurred.

730 FIFTH AVENUE

VARIOUS USES OF INTERMEDIATE X RAY THERAPY IN MEDICAL PRACTICE

Medicolegal Problems Involved

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As will be shown here, roentgen rays of moderate or medium voltages (from 100 to 140 kilovolts) can be employed beneficially in several ways:

1. Chronic inflammatory condition: (a) arthritis; (b) subdeltoid bursitis with calcareous deposits.
2. Dermatological conditions: (a) mycosis fungoides; (b) acne vulgaris; (c) herpes zoster; (d) psoriasis; (e) warts; (f) eczema; (g) dermatophytosis.
3. Miscellaneous conditions: (a) fibroids; (b) menopausal disturbances resulting in menorrhagia; (c) hemangiomas.
4. Inflammatory conditions (acute and subacute): (a) erysipelas; (b) furuncles and carbuncles.

The dosages used in treating the inflammatory conditions as well as the majority of benign lesions are relatively small. It is of the utmost importance that no deleterious skin effects, as atrophy, radiodermatitis, or telangiectasis, result.

We have often heard quoted the socalled "law of Bergonie" which states, "The sensitivity of cells to radiation varies directly with the reproductive capacity of the cells and inversely with their degree of differentiation." This law definitely informs us about the effects of low voltage therapy on the below named cellular structures in the order of their decreasing sensitiveness:

I. Lymphoid cells
II. Polymorphonuclear cells
III. Epithelial structures
  1. Epithelium of salivary glands
  2. Epithelium of testes and ovaries
  3. Basal cells of (a) skin
    (b) mucous membrane
    (c) stomach
    (d) small intestine
IV. Endothelial cells
V. Connective tissues
VI. Nerve tissues

1. Chronic Inflammatory Conditions

(a) *Arthritis.*—Numerous references in the medical literature outline the results of x ray therapy in the various types of arthritis. As early as 1906, Dr. Pfahler wrote about the treatment of arthritis with x rays. In 1935, Dr. Garland described his results in certain types of arthritis by means of roentgen therapy. In 1941, Dr. Desjardines mentions it in his article on "Inflammatory Conditions".

The roentgen rays seem to have favorable responses upon such conditions as acromioclavicular arthritis, hypertrophic arthritis and spondylitis, as well as atrophic arthritis.

Although x ray treatments are in many instances successful, they do not represent the specific therapy in all cases. In spite of the fact that atrophic arthritis may require the application of supplementary methods of therapy, hypertrophic arthritis may be favorably influenced by x rays alone.

Most root pains associated with aching and soreness and aggravated by motion of the neck or arms may be due to osteoarthritis of the cervical vertebræ. Such pathological conditions as thinning of vertebral discs, hypertrophic osteoarthritis, vertebral ankylosis or calcifications may cause radicular nerve sensations resulting in neuritis, swellings or pains in either upper or lower extremities. Disturbances in bones shown radiologically, such as calcifications, condensations, or exostosis, cannot be very well influenced by x ray radiation. However, the soft tissues consisting mainly of cartilage, ligaments, and muscles may be favorably influenced. Strangely enough, hypertrophic osteoarthritis seems in general to respond to x ray therapy better than atrophic arthritis.

Temporomandibular arthritis, resulting in pains during mastication seems to be favorably influenced by x ray therapy.

(b) *Calcareous bursæ and periarthritis.*—These conditions, involving in the main the shoulder joint, are often amenable to x ray therapy. Calcium deposits may or may not be within the subacromial or subdeltoid bursa or within the tendons of the supraspinatous or infraspinatous muscles. Surprising results are obtained in acute stages where pain and clinical inflammatory signs about the shoulder joint exist. Strangely enough, in many of these acute cases where calcareous deposits exist, intermediate x ray therapy not only affords lasting and immediate relief, but these deposits often disappear. In my hands, 140 kilovolts with three mm. of aluminum in eight divided doses up to 1000 r give favorable results.

As to the value of x ray therapy in conditions about joints, its effectiveness would depend upon such variable conditions as calcifications, arthritis, inflammatory bursitis, etc.

In treating arthritis by x ray therapy, it must again be said that every case will not respond equally. Those cases showing inflammatory and early arthritic changes will usually show early and favorable results. Subjective benefit is more often found than objective evidence of improvement. Symptomatically, complete relief of pain, with a definite diminution of swelling and tenderness, is observed. Furthermore, the stiffness, swellings, and pains which occur around arthritic joints respond very well to mild therapeutic doses. Where,

however, the joints show visible changes in the x rays, such as osteophytes, sclerosis, calcifications, etc., only favorable clinical results can be obtained in the soft structures without affecting the bony or anatomic variations.

Therefore, in conclusion, x ray therapy is much more effective when applied early than late in arthritis. The effectiveness of therapy is seen in the reduction of pain and swelling as well as a definite improvement in functional mobility.

2. Dermatological Conditions

The use of roentgen rays in the treatment of cutaneous lesions is of great value. On the other hand, there is no group of conditions in which roentgen rays are misused to so great an extent.

A "skin unit" is a term often used in dermatological roentgen therapy. It represents a "threshold erythema" dose with unfiltered roentgen rays equivalent to 300 r measured in air.

(a) *Mycosis fungoides.*—This condition, although incurable, is characterized by intense pruritus. The skin lesions are infiltrated and take on a dusky red hue. Ulcerations are occasionally seen. Being in the class of lymphoblastomas, its relationship to the lymphosarcomas with tumefactions in the lungs must be borne in mind.

X rays of intermediate therapy (140 kilovolts) filtered with two to four mm. aluminum act favorably on the skin lesions, reducing the intense itching as well as the superficial lymph nodes.

(b) *Acne vulgaris.*—This is one of the most common skin diseases treated with x rays. Although many dermatologists employ about 100 kilovolts without filtration, giving a dose of about 75 r weekly, many radiologists prefer using greater voltage (140 kilovolts) with two mm. aluminum filtration.

The pathology in these cases occurs about three mm. below the skin surface and consists in the main of a chronic inflammation involving the sebaceous glands. This skin disease is predominant in boys and girls about the time of puberty.

(c) *Herpes zoster.*—Where treatment is instituted early at the time the vesicles appear, the lesion can be eliminated early. If the origin of involvement is in the posterior root of the spinal nerves, treatment should be given paravertebrally. The factors used are 130 kilovolts with four mm. aluminum filter and an output of 150 r per field.

(d) *Psoriasis.*—Although the etiology of this disease is unknown, yet its diagnosis is easily made. X ray therapy with intermediate voltage and two mm. of aluminum filter has done much to improve unsightly lesions. Recurrence, however, is frequent. Several treatments of 75 to 100 r may have to be given to obtain satisfactory results. In view of this, care should be taken to prevent telangiectasis or atrophy of the skin. When this lesion affects the nails, roentgen therapy becomes persistent. Recurrences under x ray therapy are common.

(e) *Plantar warts.*—These verrucæ are very painful. Radiation therapy however, applied to the above lesions often afford a great deal of relief. The amount and quality of x ray therapy depends upon the thickness of the warts to be treated. Intermediate voltage of 140 kilovolts with three to four mm. of aluminum act favorably upon these lesions if enough "r" units are applied. Care should be taken not to overdo therapy in these cases.

Usually three to four erythema doses (1200 to 1500 r) suffice. After six weeks, our patient is again observed to determine the advisability of further roentgen therapy. Excess roentgen therapy in the resistant cases must be avoided, or else unfavorable results may set in. Great care must be used in protecting the surrounding tissues adequately.

(f) *Eczema.*—The term "eczema" covers a variety of cutaneous lesions, particularly chronic infectious eczematoid dermatitis and dermatitis venenata. Unfiltered irradiation not in excess of 150 r at a single session is adequate for each treatment. However, care should be used in carrying the treatments to the point of radio-dermatitis.

(g) *Dermatophytosis.*—X ray therapy with low-voltage unfiltered rays is found to alleviate these fungoid infections after application of medicaments fail. As with psoriasis, not all cases respond to x ray therapy. In resistant lesions of long duration, intermediate therapy (140 kilovolts) with filtration of 3 mm. aluminum is often helpful where low voltage fails.

3. Miscellaneous Conditions

(a) *Fibroids.*—Roentgen therapy in these cases not only tends to diminish the size of the fibroids but also produces menopause. However, malignancy must be ruled out where bleeding is irregular and profuse before or after x ray therapy. The ovaries as well as the uterus are irradiated. Intermediate therapy with one-half mm. of copper and one mm. of aluminum through three portals usually suffice. Suberythema doses are given to each portal. Two to three menstrual periods usually precede artificial menopause.

(b) *Menopausal disturbances resulting in menorrhagia.*—Very often it becomes necessary to create an artificial menopause, due not alone to the numerous menopausal disturbances and complications but also the apparent menorrhagia that ensures during this unstable period. However, if symptoms are distressing and indications exist, therapy should be instituted. The treatment is identical with that for the treatment of fibroids.

(c) *Hemangiomas.*—Radium as well as intermediate x ray filtered therapy has found its usefulness in the treatment of strawberry hemangiomas, the cavernous hemangioma, as well as a mixture of both types. Usually 135 kilovolts with filtration of three mm. aluminum up to 1500 r divided into single doses of 150 r at weekly intervals may often accomplish the desired results.

4. Acute Inflammations

Extremely favorable results occur by the treatment of inflammatory lesions with radium or x ray therapy. One or two doses corresponding to 100 or 200 roentgens generated at 140 kilovolts and filtered through four mm. aluminum usually suffice. This is the dose usually given, and varies according to the character and stage of the lesions, as well as to its acuteness. This might correspond to one-fourth or one-third of an erythema dose.

In treating inflammatory conditions, radiologists fail to obtain satisfactory results in some cases. This

might be attributed to the fact that treatments may have to be repeated at regular intervals of variable periods, depending not alone on the acuteness of the lesion, but also its chronicity.

In treating inflammatory conditions by x ray, radiologists must of necessity forget about massive doses as is given in cancer treatments. The maximum tolerance doses that might be good in malignancy are malpractice doses when treating inflammatory conditions. Furthermore, the roentgen therapy of chronic arthritis, tuberculous adenitis, and sinusitis is far different from the therapy given in acute inflammatory conditions. In the former, the therapy is given over a longer period of time and is more persistent. Peculiarly enough, roentgen therapy to acute inflammatory lesions immediately causes prompt relief of pain as well as acceleration of the suppuration.

Clinical indications are that inflammatory lesions respond to irradiation in proportion to the degree of leucocytic infiltration. This is shown by the radiosensitiveness of leucocytes, lymphocytes, and eosinophils to x ray and radium therapy. Furthermore, it must be emphasized that inflammatory lesions are most benefited during the stage of infiltration rather than the suppurative stage.

Therefore, we have enough clinical records to demonstrate that x ray therapy has favorably influenced such inflammatory conditions as pneumonia, parotiditis, mastoiditis, gas gangrene, trachoma, and bronchiectasis.

(a) *Erysipelas.*—Average cases are usually brought under control within forty-eight to seventy-two hours, following x ray therapy. Small doses of 100 r of unfiltered roentgen rays with low voltages (100 kilovolts) usually suffice. Spread of the lesion is no contraindication to therapy.

(b) *Furunculosis and carbuncles.*—Treated early, that is within one or two days after their inception, roentgen therapy results in causing the inflammation to undergo involution without suppuration. The dosage is small in very early lesions, never exceeding 75 r with a voltage of 100 kilovolts. Filtration must depend upon the size and thickness of the furuncle or carbuncle. Older lesions, however, would receive a slightly larger dose.

Roentgen rays are extremely helpful in treating furuncles about the "nasal orifice" and "external auditory canal". Inability and difficulty of sugical approach makes roentgen therapy a procedure of choice in these conditions. Carbuncles complicated by diabetes do not alter our roentgen approach.

Medicolegal Aspects

Roentgen therapy for any indication in unskilled hands is a dangerous modality. Very often such skin diseases as psoriasis, dermatophytosis and eczema are recalcitrant to treatment. The response is slow and even temporary if effective at all. In these cases, radiation may be pushed to a point of irreparable sequelae such as atrophy, telangiectasis, radiodermatitis, and even carcinoma.

One must bear in mind that the technique of irradiation employed by various investigators to the above enumerated lesions differ greatly. Not only is there a difference in voltage, filtration, and distance, but the number of roentgens delivered per dose, as well as the frequency and total dosages also differ. Bearing this in mind, one can readily see what pitfalls are open for irreparable harm.

In x ray cases, the doctor is always dealing with a powerful modality, the absolute control of which in experienced hands has been perfected to some degree. However, accurate dosages to different lesions in the body are still in dispute. Even if all is well regarding dosage, time, etc., the results may still be bad. Yet, a physician will not be held liable as long as his physical factors as to dosage, filtration, time, etc., are proper.

The doctrine of *res ipsa loquitur* asserts that whenever a thing which produces an injury is shown to have been under control and management of the defendant, and the occurrence is such as in the ordinary course of events does not happen if due care has been exercised, the fact of injury will be deemed to afford sufficient evidence to support a recovery in the absence of any explanation by the defendant tending to show that the injury was not due to his want of care.

This doctrine of *res ipsa loquitur* does not take into account the idiosyncrasy of certain patients to x rays which might well result in burns. For this reason alone, the doctrine might be rejected. This doctrine means that the facts warrant the inference of negligence, not that they compel such an inference.

It might be interesting to know that in giving x ray treatments (or even ultraviolet treatments) where injuries are sustained due to the hypersensitiveness of the patient, there is no liability on the physician if hypersensitiveness can be proven. (Antowill vs. Friedman, 188 N. Y. Supp. 777, 197 App. Div. 230.)

A roentgenologist, whether he merely does roentgen ray diagnosis or confines himself to therapy, is not an insurer and does not bind himself to make a correct diagnosis and effect a cure or to respond in damages. He is only bound to possess reasonable skill and to use ordinary care, and if he makes a mistake in his conclusion, he is excused from liability, if, possessing reasonable skill, he has used ordinary care. A failure to cure is not in itself an inference of negligence whether in diagnosis or treatment. No physician is liable for an honest mistake in judgment. On the other hand, a physician might be ever so skillful or competent in a general way or may have an unexcelled reputation and yet be guilty of the grossest negligence in his treatment of a particular case.

Many cases of radiodermatitis and other undesirable radiation reactions result from improper protection of normal tissue from scattered and secondary radiation. Such areas as the hairy parts, eyes or testes should always be protected. Overdose may result from crossfiring, back scattering and overlapping of rays. Prolonged and repeated fluoroscopy may also lead to a radiodermatitis.

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BALDWIN GARDENS APARTMENTS

EXPERIMENTAL PHYSICAL MEDICINE

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The famous pharmacologist, Torald Sollmann, welcomed the nineteenth annual convention of the American Congress of Physical Therapy at Cleveland, 1940, with the words:

"I welcome you not only as an official of our school but as a pharmacologist as well, for although drug therapy and drugless therapy may seem direct antipodes to the superficial thinker, they involve the same principles, evoke the same phenomena, accomplish the same results."

I should like to add that the historic development of each of these therapeutic disciplines was similar. The persons who first used physical therapeutic methods were laymen, just as it is beyond doubt that pharmacology has its origin in the therapeutic use of blossoms, leaves and roots of plants by laymen. Many of these drugs are still in use. Despite its nonscientific origin drug therapy became the standard therapeutic means. During a short period in the second half of the nineteenth century, however, the period of therapeutic nihilism, this therapy was disregarded even by renowned physicians.

Physical therapeutic methods, too, had to fight against disregard and neglect up to the recent past. Hydrotherapy is a striking example, notwithstanding the fact that one of the most outstanding physicians, Hippocrates, and his pupils as well, recommended and applied water in various ways as a calming, resolving and strengthening remedy. He regarded water as one of the most important means of relieving pain. For many centuries hydrotherapy was forgotten, until it was rediscovered by the English physician John Floyer in 1700. In Germany Sigmund Hahn and his two sons supported Floyer's method. Later on Hufeland succeeded in arousing the interest of physicians in hydrotherapy at about 1800. This interest disappeared again when Virchov developed his theory of cellular pathology and thereby inaugurated the period of therapeutic nihilism. This nihilism led even prominent physicians so far astray that they forgot the physician's predominant duty, namely to cure sick people. It resulted also in a disregard for all therapeutic drugs and methods, unless their effectiveness had been explained from the standpoint of cellular pathology.

It is not surprising that during this period laymen again started to use drugs and physical agents known empirically for many centuries. In this connection the famous hydrotherapist Vincenz Priessnitz, a Silesian peasant, must be mentioned. However, not for decades afterwards would any physician have ventured to suggest hydrotherapy because it was used, they felt, by charlatans only.

This therapeutic nihilism, however, had one good and unexpected result: empirical therapeutics alone could not overcome the deep-rooted disregard of pharmacological and physical means of therapy. It became clear that it was important to establish a scientific basis for both of these therapeutic disciplines. Experimental pharmacology, inaugurated especially by Hans Horst Mayer and continued by his pupils, was a consequence of this evolution. Experimental physical medicine was introduced by Wilhelm Winternitz through his well known book *Hydrotherapy on a Physiological Basis*. Hans Horst Mayer and Wilhelm Winternitz showed that research in pharmacology and physical medicine had to be carried on by experimental physiological methods. A great deal of important research work has been done in these fields during the last forty or fifty years, causing a rapid development of pharmacology and physical medicine and of physiology itself as well.

Three Groups of Therapeutic Agents

We may divide the therapeutic agents into: 1, organotropic agents, i.e., those which influence the function of organs; 2, etiotropic, i.e., agents which affect the cause of diseases, and 3, agents the therapeutic effect of which is proved by empirical use but so far not explainable experimentally.

There are many examples of the first and second group in pharmacology. Digitalis, e.g., is an organotropic drug. The usefulness of that drug has been known empirically for centuries. Experimental pharmacology has demonstrated that the digitalis substances increase the power of each ventricular contraction. This was shown by Cushing in 1897 on the hearts of dogs and cats. In these experiments Cushing (1) used the cardiometer, a plethysmographic method, and discovered that in the first stage of the digitalis effect the stroke volume is considerably increased. Less well known are the interesting experiments concerning amyl nitrite. In 1871, Lauder Brunton (2) described the excellent effect of that drug in angina pectoris. In 1913 Schloss (3) was able to confirm the observations of Lauder Brunton by experiments on cats. These experiments demonstrated that the amount of blood flowing through the coronary vessels of a cat is increased by twenty percent after the animal had inhaled a *few drops* of amyl nitrite.

These examples must suffice; it would take too much time to discuss all of the most important drugs which have an organotropic effect.

Almost equally as large is the number of etiotropic drugs. As an example I should like to mention the effect of quinine in malaria. The inhabitants of Bolivia, Colombia, Ecuador and Peru had been using the bark of quinine trees against "marsh fever" long before the conquest of those countries by the Spaniards. Quinine became known in Europe in 1683 after the cure of the wife of the viceroy of Peru, Countess Anna Chinchon, who had suffered severely from marsh fever. Linne, the famous botanist, gave these healthful trees the name Chinchona in honor of the Countess. Up to 1880 the physicians took it for granted that quinine was effective through its influence upon the central nervous system. In 1880, however, Laveran discovered the malaria plasmodium as the cause of malaria. Soon afterwards it was shown that quinine solution, diluted up to 1:100000, kills malaria parasites not only in the test tube but also in the blood stream. Many experiments demonstrating organotropic or etiotropic effects

have also been performed in the field of experimental physical medicine.

The effects of physical therapeutic methods, however, are often more complex than those of many drugs. The organ primarily influenced by most of the physical agents is the skin whose functions are very complex. Despite many difficulties a great deal of experimental work has been done in physical medicine especially in the last forty years. In order to influence any organ the physical agent must penetrate it. Despite

FIG. 1

very simple experiments which have shown the contrary, the power of the penetration of light through the skin is often underestimated. N. R. Finsen (4) irradiated sensitive paper through the ears of rabbits and men (1899). The paper was blackened especially in cases where the blood in the irradiated skin was forced out through compression. Finsen was also able to demonstrate that a light beam can still be divided into the colors of the spectrum after it has penetrated through the compressed ear of a rabbit. Further examinations by G. Busck, in Finsen's institute, have shown that the concentrated light of a carbon arc lamp passing through the middle of a hand (2.8 cm.) blackened sensitive paper in one second; when passing through the wrist of a hand (3.7 cm.) it achieved the same effect in four minutes. The limit of the power of penetration of light through human tissue is at about five cm. Other experiments demonstrated that infrared has the highest power of penetration. This power decreases slowly in the visible part of the spectrum. At the other end of the spectrum ultraviolet has still some power of penetration but only down to a wavelength of 265 microns. The power of penetration of light of shorter wavelengths (below 240 microns) is very small.

The experiments mentioned are the basis of photobiology and phototherapy, as they have shown that light is effective in all layers of uncovered skin. We are able now to understand the phototherapeutic effect of concentrated arc light in lupus vulgaris and of the well known hot quartz mercury lamp in treating certain skin lesions. We may also expect organotropic effects of light due to its power of penetration. The most important example is the therapeutic effect of ultraviolet irradiation in rickets. In 1890 Palm discovered the relationship between the lack of exposure to sunlight and the incidence of rickets, and recommended that children, especially those born in winter months, be exposed to sunlight irradiation as often and as long as possible. As so often happens in medicine, clinical results observed empirically preceded experimental proof. Only in the last decade the fact was discovered that ultraviolet rays convert ergosterol, which is present in the skin, into the active antirachitic vitamin D.

Several less known experiments referring to photobiological and therapeutic effects must be mentioned. In 1905 Hasselbalch (5) performed experiments on man which proved the relationship between ultraviolet irradiation and the respiratory volume. The frequency of breathing diminishes and it becomes deeper even after irradiation of a small area of the skin. That effect persists for some time after the disappearance of the erythema. That discovery is of great importance, e.g., for the treatment of pulmonary emphysema. When small skin areas are irradiated, however, not only the respiratory volume but also the cardiac output increases. This fact was demonstrated by Hasselbalch in collaboration with Lindhardt. The effect does not outlast the acute stage of erythema. Through successive irradiations of parts of the trunk, however, it can be prolonged. It is surprising that this effect which was described by famous Scandinavian physiologists is almost unknown, though this kind of irradiation is very effective in treating angina pectoris ambulatoria.

We further have to mention the effect of light on the intermediary metabolism. In 1911 the Viennese physiologist, Arnold Durig (6), discovered that in high climates the protein balance becomes distinctly positive through the influence of light. I was able to prove that observation by experiments on dogs which showed the influence of ultraviolet irradiation on the intermediary metabolism by examination of nitrogen, neutral sulphate and creatinin in the urine (7). The results of these laboratory tests were in full agreement with the findings of Durig who observed a positive nitrogen balance in persons on the Monte Rosa (Switzerland), even if these persons were fed with food having a low nitrogen content. These experiments gave the explanation

FIG. 2

FIG. 3

for the usefulness of light irradiation in consumptive diseases, e.g., in tuberculosis.

Further studies of the influence of physical agents on the intermediary metabolism should be very fruitful especially when we consider the recent studies of Rudolf Schoenheimer of Columbia University. This scholar introduced atoms of heavy hydrogen, heavy nitrogen as well as heavy carbon oxygen and sulphur into the diet of animals in order to determine the use which the animal body makes of food constituents. Physical medicine might be helpful in these experimental studies.

The experiments described above show that light can influence the metabolic laboratory of the body by organotropic stimulation of the functions of the skin.

In discussing the influence of physical agents upon the skin it should be remembered that the capillaries of the skin permit a direct microscopical examination of the effect of light rays, x rays, heat and cold, climatotherapy and hydrotherapy. The literature on this topic is increasing, but this chapter of physiology, and physical medicine too, has perhaps not yet received the general attention which it deserves. The reason for this, however, is clear. August Krogh (8) wrote in the foreword of his famous book, *Anatomy and Physiology of the Capillaries* (New Haven, 1922): "Though the discovery of the capillaries was made two hundred years ago the modern textbooks of physiology dealt with the capillaries in few lines. In the last years, however, the capillaries have been rediscovered, and are now an important part of experimental research."

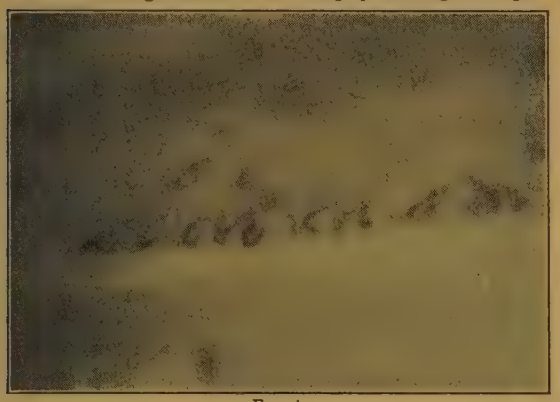

FIG. 4

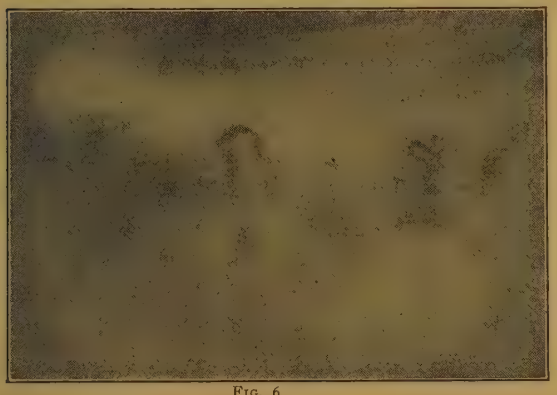

FIG. 6

A Study of the Capillaries

In this research experimental physical medicine has again played an important part. The capillaries of the nail fold of adults have the shape of hairpins, normally, and a length from 0.1 to 0.5 mm. (Fig. 1). In pathological cases, e.g., in nephrosclerosis, greatly enlarged capillaries are to be found. The capillaries of newborn children differ widely in their shape from those of adults. As I have shown by capillary photography, the capillaries of a newborn twelve hours after birth are not hairpin shaped; instead we observe a network of meshes of irregular shape and size (Fig. 2) (9). This capillary network develops slowly.

Fig. 3 shows the capillaries of a seven day old girl which still differ widely from those of adults. Only after four to six months do the capillaries reach the final shape and regularity which can be observed in those of an adult. The development of the capillaries may be disturbed in infancy by endogenous as well as by exogenous causes. But also in adults the shape of the capillaries may be changed especially in diseases of the arteries. Sometimes, however, the shape of capillaries may not distinctly differ from normal but the flow of blood is changed characteristically.

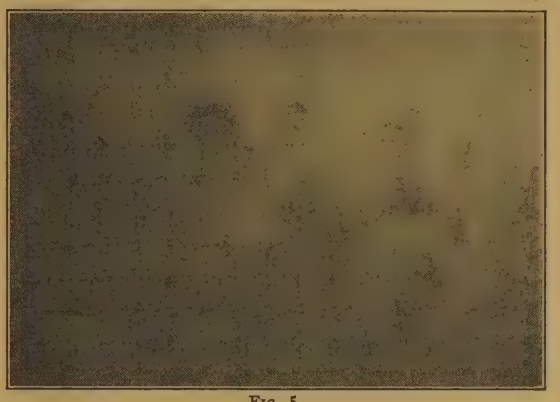

FIG. 5

Fig. 4 shows the capillaries of the nail fold of the big toe of a male patient, thirty-five years old, who had been suffering from Buerger's disease for one year. The shape of the capillaries is not characteristic. But the pale background shows that the arterioles are constricted. Furthermore microscopic observation revealed the fact that there was stasis in most of the capillaries, and flow of the blood in the remainder was very slow.

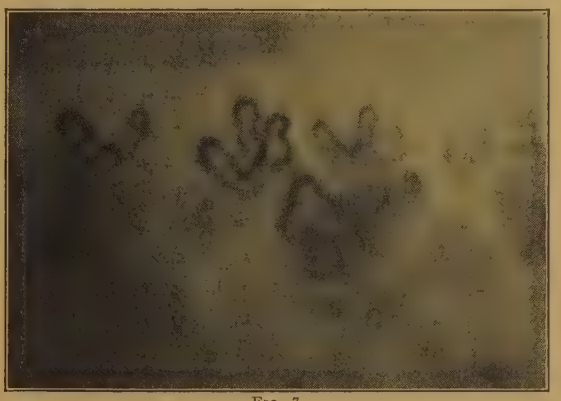

FIG. 7

Fig. 5 shows the capillaries of a forty year old male patient suffering from Buerger's disease for five years. In this case changes in the shape of the capillaries can already be observed. Gangrene of this toe was clinically imminent. The circulation was very poor. The condition of this patient was improved through short wave therapy and histamin iontophoresis. Gangrene of the toe was prevented and a picture of the capillaries, taken one year later, also showed certain improvements of the circulation (Fig. 6).

Fig. 7 shows the capillaries of a male, sixty-three years old who suffered from peripheral sclerosis with intermittent claudication. The capillaries are very much enlarged and of bizarre shape. In areas where the blood supply was poor for several years the capillaries are usually enlarged. Sometimes this kind of capillaries is found in patients whose subjective complaints were not alarming. It is interesting furthermore that, after effective treatment, even in these capillaries the circulation is improved. The study of the capillaries therefore is an important means to determine the effectiveness of the therapeutic methods employed in diseases of arteries.

Further methods to determine the blood flow in extremities are the determination of changes in the temperature of the skin and the plethysmography. In diseases of arteries it will be important to determine by plethysmography to what degree the volume of the examined limb increases during muscle contraction.

High Altitudes and Red Blood Cell Formation

The value of capillary studies for experimental physiology and medicine was demonstrated also in examinations which I performed in St. Moritz, Switzerland (10). The purpose of these studies was the investigation of the climatotherapeutically important problem of the stimulation of red blood cell formation in high altitudes.

In 1877, Paul Bert (11) stated that in high altitudes the amount of erythrocytes and hemoglobin increases, thereby adapting human beings and animals to the low atmospheric pressure. Bert based his theory upon observations in La Paz, Bolivia (altitude 11,000 feet). There can be no doubt that the increase of erythrocytes and hemoglobin during prolonged stays in high altitudes is real and absolute. Some physiologists doubted, however, whether the sudden increase in the number of the red blood cells might be caused by new formation of erythrocytes. In 1895 the physiologist, Zuntz (12), developed the theory that this rapid increase of red blood cells might be caused by changes in the distribution of red blood cells in the circulatory system.

Through the capillary studies mentioned above I was able to prove this theory. We examined the capillaries of thirty persons in good health, and obtained the following results. Those persons who had been staying in the region of high altitude (5400 feet in this case) for a few hours or a few days showed a blood flow much slower than the one observed in normal persons in low altitude. Furthermore sedimentation and agglutination of erythrocytes were discernable in the capillaries. In six persons who had been in the described altitude for a few hours only we could observe a congestion of erythrocytes in many capillaries to such a degree as to cause an irregular expansion of the wall of the capillaries and the formation of capillary varices. An interesting phenomenon was that four persons of the thirty examined showed no changes in the shape of the capillaries and the blood flow. Two of these persons had their permanent residence in St. Moritz for several years, and two others had lived in that altitude for seven weeks.

This augmentation of erythrocytes in the capillaries explains why most authors have found an increase of erythrocytes in the blood immediately after the arrival in high altitudes. The blood examined is as a rule taken from capillary vessels in the finger pulp or the lobe of the ear.

The described studies do not explain, however, which factors of the climate in high altitudes are responsible for these changes in the distribution of the red cells. Possible influencing factors could be the diminishing of the oxygen partial pressure, changes in the temperature and humidity, sunlight irradiation, atmospheric electricity and so on. The influence of high altitudes on human beings and animals is very complex, and each of these factors in itself and combinations of these factors have to be examined. In this connection the careful studies of Bazett, Sunderman, Doupe and Scott (13) concerning the climatic effects on the volume and composition of blood in man must be mentioned. These authors found that "exposure of an individual to environmental temperatures maintained at different levels for periods of several days is accompanied by significant changes in blood volume." They found, e.g., an increase of blood plasma and of red corpuscles in the warmth and decreases in the cold. The changes observed occurred more rapidly in the plasma than in the cells.

On the other hand, the influence of all these factors on different organs must be studied. Recently S. Selmanova and I. U. Malkiman (14) reported that reduced barometric pressure checks the function of gastric glands.

The studies of the effect of high altitudes on human beings becomes more important every day, not only for military flying but perhaps even more so for civilian flying. In the latter case not only young persons of good health ascend to high altitudes but also people of all ages and of different degrees of bodily resistance. Much work in this field has been done already as can be seen from the excellent standard book of H. G. Armstrong, *Principles and Practice of Aviation Medicine* (15), but there is still a wide range of problems open for research.

It can be stated that phototherapy, hydrotherapy, thermotherapy and some climatic factors have organotropic effects. They may influence different functions of the skin as has been shown above in some examples. The question as to whether there are any known organotropic effects of physical agents on other organs must be answered in the affirmative. In 1919 I showed that the milk secretion of the mammary gland is increased by diathermy in mothers suffering from insufficient milk secretion (16). L. Brody, in Chicago, demonstrated in experiments on dogs that diathermic treatment of the stomach increases gastric secretion.

Lastly, the question, whether there is any experimental proof for etiotropic effects of physical therapy treatment, has to be discussed. This question, too, has to be answered in the affirmative. The best known example is the therapia sterilisans magna of gonorrhea through electropyrexia. The scientific basis for electropyrexia of all forms of gonorrhea has been given through careful experiments and studies on the effect of heat on gonococcus bacilli, carried out by R. A. Boak, C. M. Carpenter, L. A. Mucci and S. L. Warren (17). These authors examined the thermal death time of one hundred and thirty strains of gonococcus bacilli in vitro. They found that ninety-nine percent of the gonococci were destroyed in four to five hours at 41°

C. (105.8° F.); the remaining one percent after eleven to twenty-three hours. At 41.°5 C. (106.7° F.) and 42° C. (107.6° F.) ninety-nine percent of the gonococci were destroyed in two hours; the remaining one percent was killed in five to twenty hours.

Conclusion

Only a few examples could be given in this paper which, however, show that physical therapy has already made ample use of experimental proofs to solidify the theoretical basis of findings made empirically through the clinical use of physical agents. Many unanswered questions still remain, as is only natural especially in a young science. Because of the complexity of the effects of physical agents the experimental work which has to be done is usually equally complex. However, we may hope that many of these problems will be brought to a solution through the application of experimental methods of physical medicine based upon the broad findings of human and animal physiology and biology.

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Bronx Hospital

Use of X Rays in the Manipulation of Fractured Limbs

In view of the damage sustained by surgeons both in Great Britain and the United States when using x rays in the manipulation of fractured limbs, the British X ray and Radium Protection Committee has drawn up the following memorandum which appears in the *British Medical Journal* (January 17) 1942:

X rays may be used for this purpose—and also for the removal of foreign bodies—in two ways: 1. By screening or taking radiographs (which can now be processed very rapidly) when the surgeon believes he has attained correct position. Radiography should be the usual procedure adopted, and should involve no exposure of the hands or person to a direct beam of x rays. 2. By actually manipulating the fracture under fluorescent screen control. This inevitably produces conditions of grave risk and cannot be rendered safe, for the surgeon's hands must at times come into the direct beam of x rays. Only in exceptional cases should the second alternative be adopted, and then only on the responsibility and under the direction of the senior surgeon. Such work should never be delegated to juniors.

General Conditions

The operating room should be satisfactorily darkened. Lights should be dimmed as far as possible before screening, and no lights should face the surgeon. The previous films of the case should be seen and memorized, and not scrutinized in a bright viewing box immediately before the manipulation. It is essential that the surgeon should prepare his eyes for screening. This takes a certain amount of time, which varies with the individual, but a minimum period of five minutes in the dark should be allowed for this. It can also be attained by using a single red light in the room or by the wearing of dark (preferably red) goggles for a period of some minutes before screening is begun.

The x ray apparatus should be operated by a radiographer who has been specially trained for this work. He should be given definite instructions by the radiologist as to the limits within which he must use the apparatus. These limits should be governed by hard-and-fast rules, drawn up by the radiologist in conjunction with the surgeon in charge, and not in any circumstances to be varied if a surgeon finds himself in difficulty. The radiographer should keep a log book recording the factors with actual times of screening involved. This log book should be signed by the surgeon after each operation, and the book should be inspected at regular intervals by the radiologist.

Operating Conditions

In general the recommendations of the British X ray and Radium Protection Committee should be followed.

The tube-screen distance should not be less than twenty or more than thirty inches. The apparatus should be set to give not more than 65 kilovolts. For thin parts and children, a lower kilo-voltage will be adequate: 3 ma. is the maximum screening current that should be used. As a safeguard against excessive screening current, an automatic "cut-out" can be incorporated in most x ray sets at a small cost.

All apparatus should be shock-proof. An aluminum filter of 1 to 1.5 mm. should be fixed in the aperture of the x ray tube so as to furnish a total filtration of not less than 2 mm. of aluminum. Cones or cylinders to limit the x ray field are essential; these should be of such size that the illuminated area falls well within the limits of the fluorescent screen. An illuminated area of five inches circle, or four inches by six inches rectangle, is ample for this type of work. The radiographer should constantly watch to see that the x ray beam is kept within the limits of the fluorescent screen. It is his duty to point it out to the surgeon if this essential factor is not complied with. If the x ray tube and screen can be coupled to ensure this, it is a major safeguard which should be adopted. An integrating time switch is useful. All exposures should be made with a timing device. The fluorescent screen, faced with lead glass, should be of modern manufacture and in good condition. It must have handles that afford protection to the hands. A mechanical device for holding the screen is, however, preferable.

Under the above conditions, screening and radiography between manipulation can be carried out with safety, provided always that the hands of the operator or of the assistant who holds the screen or films do not come within the direct beam.

Manipulation of fractures under screen observation should be employed only in very exceptional cases, preferably, if possible, with a radiologist in attendance. The time occupied in such manipulation should be strictly limited to one minute, and this should be accurately computed by the radiographer in attendance. It should be recognized that, even with one rapid manipulation with the hands in the direct beam, the safety tolerance dose may be considerably exceeded. If the surgeon is willing to take this risk, it is entirely on his own responsibility. (Note: In the direct beam the exposed hands are subject to the daily safety tolerance dose in the prescribed conditions in about two seconds at twenty inches. At shorter distances, e.g., when the reflecting fluoroscope is employed, the hands are nearer the tube and the dose is increased.)

The crytoscope (the fluorescent screen fitted to the head and supplied with a hood) is a very dangerous device, and should never be used.

Operating conditions vary greatly in different hospitals, and it is suggested that each should draw up its own set of regulations. A list of specific safety instructions should be prepared and posted in the departments concerned.

Myalgia of the Head

Henry L. Williams and Earl C. Elkins (*Archives of Physical Therapy,* January 1942) say that various theoretical concepts have been advanced concerning the cause of myalgia and its related pain, and if any of these concepts is correct, the use of certain physical therapeutic measures should be of benefit. Clinical experience is beginning to verify this, since various forms of heat and a specific type of massage have been effective in bringing about relief. The following are some of the psychological effects of heat which may be of benefit in relation to myalgia: 1. Increased circulation in the area to which the heat is applied would assist in carrying away deleterious substances. 2. Heat increases the alkalinity of the blood and probably also of the tissues. 3. It is thought to produce intracellular substances which decrease the resistance of the capillary wall to rupture. 4. It also increases the permeability of the capillary walls to certain cellular and fluid constituents of the blood which may be of importance in the treatment of myalgia if the cause is on a chemical basis. 5. Flow of lymph is increased, thereby aiding in decreasing edema. 6. Heat relaxes muscles and assists in the treatment of tension states which exist so often in myalgia. The sources of heat most effectively used are luminous heat lamps which produce the short infrared rays which are the most penetrative of the infrared portions of the spectrum.

The high frequency currents, particularly short wave diathermy, are effective in producing a more penetrative heat than any of the other sources of heat used in physical therapy. Hot towels, hot packs or even paraffin can be used as a means of application of heat to the area which may be causing indurative headaches. In certain instances in which general relaxation is desired in patients who have socalled tension states and also in patients who may have socalled vasomotor instability in which there seems to be an abnormal capillary circulation, hot tub baths may be of benefit. Massage seems to be the most effective single treatment of myalgia of the head. Massage alone is more effective than heat alone, and a firm, heavy friction type of massage is more effective than stroking or kneading.

The technique used in the treatment of the patients reported consisted of mild forms of heat by means of luminous infrared sources or occasionally, when it was desirable to treat more deeply involved areas, short wave diathermy was used for periods of thirty minutes. Following this, a stroking type of massage was used at the beginning, followed by progressively increased pressure to a firm, friction type.

Use of Heat in General Practice

Ben Boynton (*Virginia Medical Monthly* January 1942) says heat is probably man's oldest remedy. Its use has been constant down through the ages and today heat is one of the most commonly used physical measures in the practice of medicine. He discusses the sources of heat and the indications and contraindications for its use. He summarizes his conclusions as follows: The physiological effects of heat are 1, an increase in blood supply to the part, and 2, sedation due to the relief of pain. The sources of heat fall into two large groups: 1, those which produce superficial heat, and 2, those which produce penetrating heat. The only absolute contraindications to the use of heat are acute trauma with extravasation of blood into the tissues and conditions where there is an organic unsufficiency in blood supply. Heat may be used with benefit whereever there is inflammation, infection, or tissue repair in progress, so long as it is used with care and understanding of its physiological effects. Heat is never a complete therapeutic regime when used alone but it must be considered as a valuable adjunct to other forms of treatment. The choice of the type of heat to be used depends primarily on the condition to be treated; secondarily, on the availability of an effective source. Finally, heat should be definitely prescribed; the patient should be told what form of heat to use; what intensity of heat to use; the length of each treatment, and how often to repeat the treatments.

News Items

Symposium on Headaches.—At a stated meeting of the New York Academy of Medicine, to be held Thursday evening, March 5th, the scientific program will consist of a symposium on headaches. Dr. Harold G. Wolff, associate professor of medicine, Cornell University Medical College, will present general considerations and Dr. Bayard T. Horton, associate professor of medicine, Mayo Foundation, will discuss clinical varieties and their treatment.

Friday Afternoon Lectures.—The fourteenth lecture of the sixteenth series of Friday afternoon lectures at the New York Academy of Medicine, will be presented by Dr. Thomas H. Russell, director of surgery, New York Post-Graduate Medical School and Hospital, Columbia University. His subject will be Indications for surgery and the surgical treatment of diseases of the gallbladder. The fifteenth lecture of the series will be given on March 13th, by Dr. George F. Cahill, professor of urology, College of Physicians and Surgeons, Columbia University, whose subject will be Recent advances in certain renal surgical problems.

American Surgeons Send Gift to Royal College of Surgeons.—A gift of two thousand pounds from the American College of Surgeons has been received by the Royal College of Surgeons of England to help towards its restoration. An appeal is being made to the surgeons of the United States for contributions to assist still further in the restoration of the Royal College of Surgeons.

Section of Historical and Cultural Medicine.—At a meeting of the Section of Historical and Cultural Medicine of the New York Academy of Medicine, which will be held on Wednesday evening, March 11th, Dr. Walter B. Mount will read a paper on the Early history of auscultation and the stethoscope. Dr. Wardner D. Ayer will present by invitation Selections from the Wolfe collection of noted men. There will be a general discussion. Dr. Claude E. Heaton is chairman and Dr. Herman Goodman is secretary of the section.

New England Society of Physical Medicine.—At a regular meeting of this society, held in Boston, on Wednesday evening, February 18th, Dr. John H. Talbott, associate in medicine, Harvard Medical School, presented a paper on the Physiological and therapeutic effects of hypothermia, which was illustrated by slides. Dr. Augustus S. Rose, assistant in neurology, Harvard Medical School, opened the discussion.

Meeting of Psychiatrists and Neurologists.—A combined meeting of the Section of Neurology and Psychiatry and the New York Neurological Society will be held at the New York Academy of Medicine, Tuesday evening, March 10th. The scientific program will include the following papers: Development of neurological surgery in New York City during the past twenty-five years—with remarks on the advances due to experiences in the first World War, which will be illustrated by lantern slides, by Dr. Charles A. Elsberg; Neuropsychiatric problems in burn encephalopathies of childhood, by Dr. Lauretta Bender. Dr. Morris B. Bender will open the discussion.

Gift of Dr. Knopf's Medical Library to the Army Medical Library.—The medical library of the late Dr. S. Adolphus Knopf has been presented by Mrs. Knopf to the Army Medical Library, Washington, D. C. This gift includes over twelve hundred books and nearly 450 published writings of Dr. Knopf, also about one thousand duplicates to be loaned and distributed. There are also many portraits of medical men, collections of letters from Sir William Osler and William H. Welch and other prominent medical men, diplomas, etc. Dr. Knopf's books form an extensive collection and the whole library will be placed ultimately in an open shelf alcove as the nucleus of a reference collection of works on tuberculosis. Dr. Knopf also had a splendid collection of photographs of all the presidents and vice-presidents of the National Tuberculosis Association which have been presented to that organization at the request of the president, Dr. Kendall Emerson, besides letters from many prominent men. The New York Academy of Medicine requested all of Dr. Knopf's instruments, some of which are interesting antiques, and also his three inventions. These will all be placed in the museum of the academy.

New York Physicians Association.—At a stated meeting of the New York Physicians Association, held in Squibb Hall, New York, on Wednesday evening, February 25th, Lieutenant Commander Albert S. Hyman, U.S.N.R., read a paper on Casualties of the war—cardiovascular toll. Dr. Harry Gold read a paper on Some recent developments in digitalis therapy. A general discussion followed the reading of the papers.

Sections of Medicine and Surgery to Hold Joint Meeting.—A combined meeting of the New York Academy of Medicine Section of Medicine and the Section of Surgery will be held Friday evening, March 6th. The following papers will be presented: Treatment of chronic arthritis, with special reference to the use of gold salts in rheumatoid arthritis, by Dr. Martin Henry Dawson; Surgical procedures found useful in treatment of rheumatoid arthritis, by Dr. M. N. Smith-Petersen; Treatment of Marie-Strumpell arthritis of the spine, by Dr. William Sheppard.

Section of Pediatrics.—At a meeting of the Section of Pediatrics of the New York Academy of Medicine, to be held Thursday evening, March 12th, an interesting feature will be a discussion of the early management of poliomyelitis with an evaluation of the Sister Kenny treatment. Those who will take part in this discussion are Dr. Mary M. I. Daly; Dr. Jerome Greenbaum; Dr. Edward Reilly, and Dr. Alvah Weiss. Other papers on the program are Management of acute obstructive laryngotracheobronchitis from the pediatric viewpoint, by Dr. A. Harry Neffson, and Treatment of pertussis, by Dr. Lewis Jacobs.

Discussions on Venereal Disease.—Saturday morning conferences on the subject of venereal diseases are being presented by the Bureau of Social Hygiene of the Department of Health of the City of New York. The subjects for discussions on March 7th are: Gonorrhea in the female, and Epidemiology of syphilis; March 14th: Health department services to the physician, and Research in gonorrhea; March 21st: Intensive treatment of syphilis, and Sulfa compounds in gonorrhea. Interesting cases will be presented at these meetings and the discussions will be illustrated by lantern slides.

Personal.—Dr. John J. Moorhead, of New York, delivered an address on Surgical Experiences in Hawaii, at a clinical conference of the Hospital for Special Surgery, held at the hospital on Thursday, February 19th.

Dr. Arthur A. Landsman of New York, will deliver an address on Congenital malformations of the rectum on Monday afternoon, March 9th, at the Jewish Memorial Hospital, Broadway and 196th Street, New York.

Dr. Robert H. Halsey was elected commander of the Caduceus Post of the American Legion, at its recent annual meeting. Drs. Henry H. M. Lyle, Nelson M. Holden, Charles W. Depping, and Edward D. Rudderow were elected vice-commanders.

Dr. Lauretta Bender, senior psychiatrist at Bellevue Hospital, has been appointed temporary chairman of the newly organized New York Society for Child Psychiatry.

Dr. J. A. W. Hetrick has been appointed dean of the New York Medical College, Flower and Fifth Avenue Hospitals.

Dr. I. S. Ravdin, of Philadelphia, was the guest speaker at a joint meeting of the Westchester County Medical Society and the Westchester Society of Gastroenterology, held on February 17th. His subject was Some nutritional aspects of surgical patients.

Dr. Edgar Douglas Adrian, professor of physiology at Cambridge University, England, delivered the twenty-third course of Herter lectures at Johns Hopkins University on February 3rd, 4th, and 6th. The subject of his lectures was the Organization of the Senses.

Major Harry George Armstrong, U. S. Army Medical Corps, has received the John Jeffries Award for his work on the physiological and psychological effects of flight at high altitudes. Major Armstrong has made valuable contributions to the literature of aviation medicine and was instrumental in establishing the Army Aero Medical Research Laboratory, at Dayton, Ohio.

Dr. Ernest W. Reid, of Pittsburgh, Pa., has been appointed chief of the chemicals branch of the War Production Board, succeeding Dr. Edward W. Weidlein, also of Pittsburgh, who will be retained in the organization as senior consultant.

Dr. Maurice H. Seevers, associate professor of pharmacology at the Medical School of the University of Wisconsin, has been appointed professor of pharmacology and chairman of the department at the Medical School of the University of Michigan.

Dr. Maurice C. Pincoffs, professor of medicine at the School of Medicine and College of Physicians and Surgeons of the University of Maryland, delivered the Henry Sewall Memorial Lecture at Denver, Colorado, on February 3d. His subject was Epidural Abscess.

Dr. Royal Whitman, of New York, who has retired from active practice and is now residing in London, was recently made a member of the Royal College of Surgeons.

Clinical Conference at Medical Center in Jerusalem.—Hadassah's war Emergency Committee in Palestine announced recently that Hadassah's medical center on Mt. Scopus in Jerusalem, the Rothschild-Hadassah-University Hospital and Medical School, is offering clinical conferences to Australian, New Zealand, British and other allied medical men stationed with the armies there. Courses in the control of malaria, leprosy, bubonic plague and other epidemic diseases indigenous to semitropical climates are also being given.

Contributors to the Knowledge of Syphilis.—At a meeting of the New York Society of Medical History, to be held on Thursday evening, March 5th, in the New York Academy of Medicine building, 2 East 103d Street, New York, the evening will be devoted to a presentation of notable contributors to the knowledge of syphilis, by Dr. Herman Goodman. The discussion will be opened by Dr. Howard Fox and Dr. Frank C. Combes, and a general discussion will follow.

Meeting of Industrial Physicians.—The joint annual convention of the American Association of Industrial Physicians and Surgeons and the American Industrial Hygiene Association will be held in Cincinnati, April 13-17th. The first half of the program will be in charge of industrial physicians and industrial hygienists will take care of the rest. The subjects chosen for discussion will be of interest not only to physicians but also to executives and industrial engineers.

New York University College of Medicine Alumni Dinner.—The annual dinner of the Alumni Association of the New York University College of Medicine was held Friday evening, February 20th. Dr. George G. Ornstein was toastmaster and the speakers included Dean Currier McEwen, who greeted the alumni and their guests; Chancellor H. W. Chase, who delivered an address on the Rôle of Universities in the War, and Dr. John J. Moorhead, who recounted some of his experiences during the Pearl Harbor attack. The Seventh Annual Alumni Day was held on Saturday, February 21st, with morning and afternoon sessions and a luncheon.

Gorgas Memorial Institute.—At a recent meeting of the Gorgas Memorial Institute of Tropical and Preventive Medicine, Inc., held in Washington, D. C., the following officers were elected: President, Colonel Joseph F. Siler, of Washington, D. C.; vice-president, Dr. Bowman C. Crowell, of Chicago; secretary, Dr. Merritte W. Ireland, of Washington; treasurer, Dr. A. M. Nevius, of Washington.

International Medical Center.—At a meeting held on Wednesday evening, February 25th, the program was as follows: Interesting cases of the week, with the presentation of patients: Large numerous calculi in both ureters at vesical end; Vagabond ascending colon; Stenosis of second portion of duodenum. The paper of the evening was read by Dr. A. L. Soresi, his subject being the Ideal Anesthesia. A general discussion followed.

Child Development Clinic at Yale.—A grant of $10,000 by the Carnegie Corporation of New York has been received by the Yale School of Medicine, to be used in support of the research program of the Clinic of Child Development. The Clinic, which was founded in 1911 by Dr. Arnold Gesell, its present director, is investigating the mental growth of normal infants and devising clinical methods for the early diagnosis of developmental defects and deviations. Staffed by pediatricians and psychologists, it maintains a diagnostic and advisory service for infants and preschool children, a guidance nursery, a photographic research library, and special facilities for one-way-vision observation and for systematic studies of normal and abnormal child behavior. The current research program includes studies of the early growth of personality and personality defects in infants and young children.

National Commission on Vital Records.—At the request of the Association of State Health Executives and the American Association of Registration Executives, a national committee on vital records has been established as a special committee of the Health and Medical Committee of the Office of Defense Health and Welfare Services. Dr. Lowell J. Reed, professor of biostatistics and dean of the Johns Hopkins University School of Hygiene and Public Health, has been appointed chairman.

Dr. Fischelis Called to Duty on War Production Board.—Dr. Robert Fischelis, secretary and chief chemist of the New Jersey Board of Pharmacy and member of the New Jersey State Board of Health, has been released for part-time service as chief of the Section of Medical and Health Supplies of the Civilian Supply Division of the War Production Board. Dr. Fischelis will organize a staff of specialists and consultants in the field of hospital, medical and drug supplies at the Washington office of the War Production Board.

Russian War Relief.—The Students' Association of New York University College of Medicine have sent $110 to the Russian War Relief, Inc. In a letter accompanying the check, the treasurer of the association said, "we intend to continue our effort in school and hope to make another contribution to organization very soon". It is also announced that the fifth shipment of supplies assembled for Russia in less than five months was shipped recently. This shipment consisted of clothing and quantities of drugs and surgical instruments. Previous consignments to Russia consisted almost entirely of medical and surgical supplies.

Medical and Surgical Relief Committee to Include Women Physicians.—Plans to increase the scope of the Medical and Surgical Relief Committee of America by inviting women physicians to become affiliated with the organization were unanimously approved at a meeting of the Executive Board held on February 20th at the New York Academy of Medicine. The Committee now consists of a nation-wide group of 350 physicians and surgeons each functioning as the active head of volunteer workers in his own community. Headquarters are located at 420 Lexington Avenue, New York, N. Y.

Medical Aspects of Chemical Warfare.—A special four-day postgraduate course on medical aspects of chemical warfare was presented by the University of Cincinnati College of Medicine, to a group of twenty-five physicians, during the week of February 23d. The course was planned by Dr. Stanley Dorst, dean of the College of Medicine, and Dr. Leon Goldman, instructor in dermatology. Subjects studied in this course included: Military aspects of chemical warfare as related to civilian defense; chemistry; pathological physiology and symptomatology of the pulmonary irritants; therapy of the the pulmonary irritant cases; individual protection; field demonstrations; eye injuries from chemical warfare agents; burns from incendiaries and other materials; vesicants; medical aspects of screening and irritant smokes and tear gases; some systemic poisons; medical aspects of collective protection; medical aspects of protection of food, water and animals; anesthesia and demonstration of operating room setup without collective protection; demonstrations of first aid station's, etc.

Scholarships for Women in Health Education.—Two full tuition scholarships of six hundred dollars each are offered in the field of health education at the Massachusetts Institute of Technology, Boston, for 1942-43, according to *Health News*. These scholarships are available to women only, and will be awarded to candidates recommended by the National Tuberculosis Association. It is desirable that applicants have basic training in chemistry, biology, psychology and education, and although professional experience is not required, preference will be given to candidates with a bachelor's or master's degree, and successful teaching or administrative experience. Scholarships will be awarded in June, 1942, and applications should not be received later than April 30th. All who are interested, should write to the Child Health Education Service of the National Tuberculosis Association, 1790 Broadway, New York City for application blanks.

Polyclinic Honors Doctors.—On February 10th, Polyclinic Hospital honored the twenty-three physicians deemed to have contributed most toward its creation by unveiling their portraits in the faculty room of the hospital, according to the *Journal of the Medical Society of the County of New York*: Dr. Orrin S. Wightman former president of the New York State and County Medical Societies, made the presentation, which was officially accepted by Dr. Joseph F. McCarthy, president of the faculty. The physicians honored are: D. Bryson Delavan, Frederick H. Dillingham, Charles Gilmore Kerley, Bernard Sachs, Frederick Whiting, Royal Whitman, Orrin S. Wightman, and the late Willard Parker, Paul Mundé, Andrew R. Robinson, Landon Carter Gray, Abraham Jacobi, W. Gill Wylie, Arpad G. Gerster, Virgil P. Gibney, L. Emmett Holt, James P. Tuttle, J. Riddle Goffe, William Rice Pryor, Robert C. Myles, John A. Bodine, John A. Wyeth and J. Marion Sims.

Congress on Obstetrics and Gynecology.—The second American Congress on Obstetrics and Gynecology will be held in St. Louis, Mo., April 6th to 10th. Two hundred specialists have agreed to take part in the general program which will include several innovations. On Monday morning at 11 o'clock there will be a general "obstetric information please", based on the well known quiz program and presided over by a moderator and four experts. This will be repeated on Wednesday morning, for shock and hemorrhage and Friday, on economics. Clinical conferences on genital infections will be held Tuesday morning, and on Thursday morning on how not to treat carcinoma. During the afternoons various groups will present formal programs devoted to nursing, public health, and hospital administration, among which will be certain combined programs. A special feature of this Congress will be a daily consultation service at 3:30 p.m. About fifty nationally known physicians will make themselves available for fifteen-minute consultations through a registration system by individual practitioners who may desire such advice in their specific problems. Round table discussions will also be arranged by the section chairmen. Practical demonstrations are scheduled in the scientific exhibit area on manikin deliveries, home care technic, and blood transfusions.

Further information is available at the Central Office of the Congress at 650 Rush Street, Chicago. Dr. G. W. Kosmak is chairman of professional publicity.

WHY DID NAPOLEON'S GRAND ARMY PERISH IN RUSSIA?

Disease and Destiny

WALDEMAR SCHWEISHEIMER
New York, N. Y.

Typhus fever, spotted typhus, is a disease which is invariably connected with war, famine and the utter misery of human wretchedness. It is relatively easy to cope with the disease under normal conditions, mostly by destroying all the lice, the carriers of typhus germ, with which actual potential patients have been infected. But this is practically impossible under the destructive conditions of war and famine. Typhus fever is indeed a war epidemic in the truest sense. That we know from the frightful losses of life due to spotted typhus in the first world war, where Russia alone in four years lost two and a half to three million lives because of this dangerous disease.

When Napoleon's armies retreated from the burning hell of Moscow, they dragged along the famine, the uncleanliness and the lice infection that form the basis for the spread of spotted typhus. A contemporary report on the fate of the beaten army describes how the onlookers could not believe their eyes when they saw behind Napoleon, not the proud Grand Army they expected to see, but only a band of spectres covered with rags, women's pelisses, bits of carpet, or with dirty cloaks scorched by the fire of the bivouacs, and with feet wrapped in the most wretched rags. They looked with alarm upon the miserable and emaciated soldiers, whose harassed and squalid faces were deformed with hideous beards, marching without arms and without order, hanging their heads and fixing their eyes on the earth in silence like a troop of captives. It was indeed but the shadow of an army.

The Grand Army felt itself not beaten by the enemy, by the Russians, but conquered by nature alone—by disease and weather. Typhus cases had begun to appear as soon as the main bodies of Napoleon's armies were assembled and began to cross the Niemen in June 1812. The army, more than half a million strong, consisted of Frenchmen, Swiss, Austrians, Prussians, Poles, Illyrians, Rhinelanders, North-Italians, Neapolitans, Saxons, Bavarians, Westphalians, Portuguese and Spaniards. Soon the rations were shortened, and Marshal Mortier, full of gloom, told Napoleon that several of his Young Guard had starved to death.

When, after long hesitation, on October 18th the Emperor gave orders for the retreat from Moscow, not more than eighty thousand men were fit for duty. Many soldiers sick with typhus were left behind, particularly in Smolensk. In Smolensk, which had been reoccupied in November, only two thousand of the cavalry were left, and there were about twenty thousand sick soldiers in the hospitals. In Vilna, the hospitals and all the public buildings were crowded. The sick, evacuated to that city, had accumulated to twenty-five thousand. The Russians soon took Vilna, but all that they found was a vast hospital of men dying from typhus, wounds and misery. By the end of June, 1813, only three thousand of all these sick soldiers remained alive.

The retreating French army brought a terrible typhus epidemic to Germany, particularly in its Northern parts. The epidemic diminished in April 1813, but it spread enormously again after the Battle of Leipzig. The military hospitals were the centers of typhus infection. There was a widely believed medical theory at that time that it was particularly dangerous for typhus patients to lie together in the same room with other patients suffering from the same disease. The typhus patients, therefore, were purposely distributed among all kinds of sick, in all sick rooms, and in this way the infection reached wider and wider circles.

The disease raged pitilessly in the fortresses where the infected field troops joined the various garrisons which so far had remained in good health. Different regions suffered in a different degree, according to the passage of troops, prisoners and fugitives. Of the civil population of the Duchy of Nassau, which had sent many soldiers to the Grand Army, sixteen percent suffered from war typhus between October 1813 and March 1814. About 3.3 percent of the population of that Duchy died from typhus. Germany, at that time had twenty million inhabitants, and about three hundred thousand died of spotted typhus. Another statistical figure shows that about five hundred physicians (without surgeons) died in Germany from typhus fever in 1813 and 1814.

Another threat to the Napoleonic Army was the terrible cold. Just as today, the soldiers were not only fighting the enemy, but cold, sleet, wind and snow as well. The temperature in the region of Smolensk and Moscow goes down to forty and fifty degrees below zero, and in that eventful winter of 1812, it went down even as low as sixty-six degrees below zero. This is frequent in the Leningrad section, and even along the Sea of Azov, in the "warm" South, the cold runs to twenty degrees below zero. There are still colder regions in Russia. The coldest known spot on the inhabitated earth is near Werchojansk in North Central Siberia, where it is even colder than at the North Pole. Here the thermometer goes down to ninety-five degrees below zero, and even in summer the temperature never rises above fifty-five degrees. Nevertheless, people live there the year round—besides plant vegetation and animals—and they know how to keep warm.

Marshal Ney, "the bravest of the brave", in early autumn several times had urged the Emperor to abandon the idea of advance and go into winter quarters. "It is late", he said. "The Russian winter will soon be upon us, and the Russian winter, they say, is ferocious." Again in Smolensk Napoleon had an opportunity to go into winter quarters and start again toward Moscow in the coming spring. But he could not refrain from going forward.

The terrible cold pressed relentlessly upon the French army, but it also pressed upon the pursuing Russians. The two frozen armies dragged along slowly and wearily through the immense snow fields toward the West. The Russian soldiers knew how to protect themselves better than Napoleon's soldiers. People who are accustomed to live in a very cold climate, know many small tricks in clothing and housing that are unknown to men coming from a moderate climate. During the long,

forced marches in ice and snow and storm, there were countless cases of frostbitten fingers and hands, feet, noses and ears which often ended in gangrene. Fifteen thousand men are said to have perished from the cold on the way back to Vilna, and in Vilna the magnificent army had shrunk to twenty thousand sick and disheartened men.

The winter of 1812 came later than do most winters in Central Russia. The fifth of November was the last day of autumn. Late that night came the change to winter. Out of the lowering, grey, foggy sky came down the famous cold of Russia, the cruel and pitiless wind from the frozen steppes of Asia. On December 6th it was sixty-three degrees below zero, and on December 7th even sixty-six degrees below. This was the coldest day of the whole winter campaign.

Many horses had broken their legs on the icy, slippery ground and consequently had to be destroyed. On that supercold day, the last of the horses perished. The story goes that even the crows and the ravens dropped down like stones from the stiff, frosted branches of the fir trees. The cold began to compel the troops to abandon the cannon and guns.

There were always some men who did not mind the cold, and Hazlitt tells us of one of them. During these dreadful days, when every bivouac was marked by its circle of dead, there was a most remarkable figure in the group, an old nobleman, a relic of the gay and brilliant days of the French court. As soon as day broke, this general-officer of sixty was sitting on the snow-covered trunk of a tree, employed with unalterable gaiety upon the details of his toilet. In the midst of the hurricane he dressed and powdered his head with the greatest care, as if in mockery of the miseries and the adverse elements which assailed him. Near him, the scientific men, almost cut in pieces by the north wind, were engaged in inquiries into the causes of its direction.

Snowstorms had a particularly bad effect on the retreating men, particularly when combined with fatigue. During his Antarctic experiments, Dr. Paul Siple found that, while a person wearing only a medium heavy sweater is reasonably warm at a zero temperature, he quickly becomes cold if there is a wind of even ten miles an hour velocity, because his heat loss increases in proportion to the increase in the velocity of the wind.

The extreme wretchedness due to the incessant cold led to the excessive use of alcohol and that unhappy combination killed many soldiers. During the first occupation of Moscow, Marshal Mortier was forced to smash two thousand bottles of vodka to prevent the Young Guard from drinking itself into a coma. Many cases of pneumonia occurred in connection with the cold and the diminished resistance of the soldiers, and many suffered from a painful ophthalmia, an inflammation of several parts of the eye. The army physicians attributed this to the dazzling white snow fields and the smoke of the nocturnal coal fires.

Another of the chief opponents of Napoleon's armies was dysentery. This epidemic had harassed the troops when they marched toward Russia, and it exhausted the retreating soldiers. The story is told of how sometimes on the march forward, after weary hours of marching, the troops came upon hot pools of foul-smelling water in the beds of dried up streams. The men fell upon their stomachs and lapped the stuff, but when they climbed to their feet to resume the march, some of their comrades remained there. Heinrich von Roos, a Württemberg physician of the Grand Army, reported in his *Memoirs,* that dysentery was treated by the use of tincture of opium, Hoffman's drops (containing spiritus aetheris), infusions of camomile or mint and sugar.

Napoleon started his Russian campaign with a medical corps that was entirely insufficient in number and equipment. Of his two leading army surgeons, Pierre François Percy and Dominique Jean Larrey, only the latter was able to accompany the army while Percy had to undergo a lengthy treatment for a severe eye disease.

Larrey, the Surgeon-General, was an unusually able surgeon and organizer. He had organized flying hospitals and a corps of stretcher-bearers, two innovations which had been of great value in previous Napoleonic wars. Larrey believed in operating within the first twenty-four hours after the wound occurred if this was possible, and to operate with utmost rapidity. This was necessary because of lack of anesthetics. He was popular with the troops and was saved by grateful soldiers during the ill-fated crossing of the Beresina. Those soldiers passed him over their heads across the bridge. He performed many operations at the roadside while the bridge-building was going on. He related later that he overheard one man, whose arm he had just amputated, remark in a sad voice as he rejoined the ranks: "I am a long way from Carcassone", and that they were indeed.

Generally, however, Larrey had little opportunity to show his art and his knowledge during the Russian retreat. The conditions were too unfavorable. He knew very well the dangers of contagion to the efficiency of troops. He prescribed garments of oiled cloth or rubberized taffeta for his physicians and nursing personnel. During epidemics they had to wear linen masks soaked in vinegar and were advised to drink some coffee, wine or liquor before visiting the sick. But all these precautions could not be carried out in Russia.

Larrey was highly appreciated by Napoleon, and when the Emperor, at St. Helena, recalled the changing fate of his life, he called Larrey the most virtuous man he had ever met and said that the world could never repay the services that Larrey had rendered to humanity. Larrey, who lived until 1842, had action in twenty-four wars to his credit. There were only few physicians or surgeons who had such enormous experience in warfare, and he never ceased to share with others the treasure of his knowledge and experience in the form of scientific lectures and publications.

His foremost principle was that the surgeon should not stay behind the lines to wait until the wounded were brought back to him. He pressed the necessity for the surgeon to go directly to the battlefield. There, he said, he will be able to save many men who otherwise surely would perish.

Many physicians and surgeons succumbed to typhus, cold or dysentery in the Russian campaign. Another leading physician, Nicolas René Dufriche de Desgenettes, one of the reformers of the medical corps of the French army, was taken prisoner when he remained behind with sick soldiers whose care was transferred to him.

Napoleon succeeded, even after this disastrous fail-

ure, in raising a new army of five hundred thousand men, but the prestige and the legend of invincibility had gone, the soldiers themselves no longer shared the faith in the genius of the Emperor, and what was perhaps even more important, the old, war-experienced soldiers had perished and young recruits took their place. Disease and *force majeure* caused the fatal destruction of Napoleon's armies in Russia, and were therefore the decisive influence on the future destiny of political Europe.

SOUTHERN CALIFORNIA MEDICINE

JOHN WILLIAM SHUMAN, SR.
Los Angeles, Calif.

(*Continued from page* 148)

The recurrent fight against the existing State medical law was launched again during the meeting of the legislature in 1903. At the close of one of the meetings of the association (February 6, of that year which was devoted to a discussion of bubonic plague in San Francisco, Pillsbury, Bewley, Powers, Cobb and Black agreeing that it had existed there for a number of years) the matter of medical legislation came up. The following resolution was offered by W. Lemoyne Wills: "The existing medical law, while not as perfect as it might be, is a decided improvement on former laws. It is doing much to raise the standard of qualifications of those admitted to the practice of medicine in this state. The medical bills introduced in the present session of the Legislature are calculated to lower the standard and undo the good that has been accomplished in the past two years, therefore, be it

Resolved, That it is the desire of this Association that our representatives in the State Legislature do all in their power to defeat said bills and continue the present law in force; and further be it

Resolved, That a copy of these resolutions be sent to each representative from this section of the State."

This was unanimuosly carried and the secretary ordered to send copies to each senator and representative from the southern part of the state. As to the good effect it had, no record appears.

At the meeting of January 6, 1905, the society passed this resolution relating to proprietary medicines: "The principles of medical ethics promulgated by the American Medical Association wisely state, 'It is derogatory to professional character for physicians to prescribe or promote the use of secret remedies', and advertising secret remedies in the pages of medical journals is considered to promote their use, and a remedy is well defined as 'Any agent or substitute used in the treatment of disease.' Such a remedy is a secret remedy unless its exact nature or composition or the quantities of its active ingredients are plainly stated in the advertising statements relating to such a remedy. Therefore be it

Resolved: That the council and officers of the medical association of California, in conference assembled, instruct the secretary to respectfully call these matters to the attention of the Trustees of the American Medical Association of which journal we are, jointly with all other members of the Association, the owners."

It further requested that the trustees in the conduct of our Journal apply the rules adopted by the association at its last meeting, as recommended by the special committee on proprietary remedies, governing the rejection of advertisements submitted for publication in the journal of the association which rules are as follows:

Articles To Be Refused Admission

1. Medical articles of secret composition.
2. Articles for internal medical use advertised or in any manner exploited as remedies or cures to the laity.
3. Medicinal articles of known composition whose formulae do not give the exact quantities of the active medical agents and their names in recognized scientific terms.
4. Articles with trade names, without the true scientific chemical name, or if mixtures or pharmaceutical preparations, without a pharmaceutical title which describes its pharmaceutical character and the principal active ingredients.

We also respectfully ask that the trustees call the attention of the association, through the editorial pages of the Journal, to that portion of the principles of ethics therein referred to, and the desirability of living up to it and of refraining from the use or promotion of secret remedies.

This resolution was accepted.

Society Reports

The committee of Orme and Hays reporting on the constitution of that eventful night of January 31, 1871, led off with the reasons why the society should be. There were four:

1. For the cultivation and advancement of the science of medicine by united exertion for mutual improvement and contribution to medical literature.
2. The promotion of the character, interests, and honor of the fraternity by maintaining the union and harmony of the regular profession of the county and aiming to elevate the standards of medical education.
3. The separation of regular from irregular practitioners.
4. The association of the profession proper for purposes of mutual recognition and fellowship.

Thus was a worthy creed laid down. After a lapse of seventy years, we still cling to the same high standards and do well to follow them.

The constitution and by-laws of those old chaps are working today with few revisions, a fact which goes to show how well they did their work. (Revised February 6 and July 3, 1891.)

Fees

A fee bill was reported by a special committee and adopted at the March 7th meeting. From this some idea can be had of diagnoses and treatments in vogue:

Visits	$ 3.00 to $ 5.00
Consultations	5.00 to 10.00
(Mileage to be charged for at the rate of one to two dollars per mile on calls more than three miles from the city.)	

Postmortems	25.00 to	50.00
Vaccinations		2.50
(A possible reason why the public was backward about the ordeal.)		
For gonorrhea and syphilis the fee	25.00 to	50.00
Obstetrical cases	25.00 to	50.00
Delivery by Embryotomy	100.00 to	300.00

Cæsar's birth route had not been revived for such common use as it is today, so no fee for the same was mentioned. It is recorded that the Franciscan priests did two Cæsarean operations on dead Indian women about 1820, both babies dying.

The surgeons, too, were doing quite well then. For capital operations such as: amputation of a limb, ligation of a large artery, (there was much dueling then) operation for cataract, strangulation of hernia, vesico-vaginal fistula and cleft palate, the fee was $100.00 to $500.00, charges to be according to the importance of the case and the pecuniary circumstances of the patient.

For operations of secondary importance, such as fistula, harelip, hydrocele, reduction of dislocations and fractures, tracheotomy, removal of small tumors, ligation of small arteries, and passing the catheter in obstruction, the fee was $25.00 to $100.00; excision of tonsils (they did not enucleate), removal of nasal polypi, tapping in hydrocele and ascites, opening of abscesses, stitching of recent wounds, cupping, passing setons, and amputation of fingers, $5.00 to $25.00.

Anything not specified was to be charged for at rates as nearly corresponding to the list of published prices as practical, and in nothing to be construed to prevent any physician or surgeon charging more than the usual rates in a case where a due regard for equity seemed to demand such an increase in price.

The foregoing fee table, although revised a number of times since, is in substance pretty much the same as the one ruling today, except regarding major surgical work.

Sanitation

For five years the little association wrestled with the City Council, with committee after committee, to establish a board of health and to appoint a health officer, "On account of the unsanitary conditions of the city." Finally J. H. McKee was appointed full time health officer.

Medical Practice Acts

January 4, 1876, the association discussed and endorsed the bill regulating the practice of medicine in the state. It was this bill which became a law April 3, 1876, and which was amended two years later and continued in effect until 1892.

In reference to medical practice here is a page from the minutes of March 3, 1923.

An ordinance to assist and facilitate the control of infectious and contagious disease and granting the right to practice medicine, surgery, midwifery, dentistry, and pharmacy within the incorporated limits of the City of Los Angeles.

SECTION I. It shall be the duty and is hereby ordained and required by the mayor and council of the city of Los Angeles that all physicians, surgeons, midwives, dentists, and pharmacists register with the health officer, which register shall contain the name, the street address, the name of the college at which said physician, surgeon, midwife, dentist, and pharmacist graduated, and date of such graduation, in a suitable book prepared therefore by the health officer, or when not graduated, the date of issuance of certificate permitting the practice of medicine, surgery, midwifery, dentistry, and pharmacy by the respective state boards of examiners for the state of California.

SECTION II. And, further, that thirty days after the adoption of this ordinance, no person shall be permitted to practice medicine, surgery, midwifery, dentistry, or pharmacy within the incorporated city of Los Angeles until he shall have registered with the health officer and procured a permit, stating therein that he is entitled to do so under the laws of the state of California; such permit to be signed by the health officer and approved by the city board of health. All permits thus issued by the health officer to physicians and midwives shall contain thereon instructions pertaining to reports to be made to said city health officer of infectious and contagious diseases occurring in the city of Los Angeles together with reports of deaths and births.

SECTION III. It is further ordinanced and required that no persons shall be permitted to sell medicines or drugs from house to house, or on the streets, without first registering with the health officer and furnishing him when so required a sample of the medicine to be sold, for analysis and displaying to him his certificate from the state board of pharmacy, and that such person shall not be eligible to receive a license from any city officer, until he has shown the above mentioned documents or drugs as the case may be, to the health officer and received a certificate from him to the proper city officer who then may issue to said person a license which shall not be less than fifteen dollars or more than fifty dollars a day.

SECTION IV. In the selling of drugs this ordinance is not intended to apply to regularly recognized traveling salesmen who deal directly with the physicians or druggists of the city.

And further, that any person violating this ordinance shall be subject to a fine of not less than fifty dollars or more than one thousand dollars for each and every offense.

In the month of July of that same year the association was incorporated under its present name, and in accordance with the laws of this state. The motto, *Scientia et honos*, was adopted for the official seal. In the minutes of that year also appeared this: "By unanimous vote of the association, K. D. Wise was placed on the blacklist, prohibiting any member from consulting with him on the pain of expulsion." His sin, however, not disclosed.

Doctor Orme was the president of the State Association in 1879. The Los Angeles medical library had its start in 1884 aided by F. A. Seymour, chairman of the committee. But it was not until the nineties that further steps were taken. In 1893 the offer of the city librarian to take medical journals for the association was accepted. In 1907 the mythical County medical library was affiliated with Barlow's Medical Library, which had its beginning in 1897.

Medical Papers

"Full of wise saws and modern instances."
—SHAKESPEARE.

A review of the titles and discussions of the scientific matters which took place in the early days of the

society is enlightening. For the most part, the early secretaries recorded in the minutes only the titles. Later under the secretaryships of Bert and Lulu Ellis, parts of the discussions were transcribed.

From one of the earliest meetings, the following brings proof that fees were not the only subjects those doctor men discussed at the March 7, 1871, meeting.

Doctor Hayes presented an interesting case for examination and diagnosis. "He is a miner, aged thirty-one, says he is healthy in every respect. Some few months ago, while mining, drilling on his back, he noticed a slight pain in his right breast with a gradual growth in hardness. We find a round, symmetrical tumor situated under the pectoralis major, evidently firmly attached to the third, fourth and fifth ribs, near the junction of the cartilage. It is quite hard and does not move with the muscle. Gives no pain at any time." Several expressed their ideas but no definite conclusion was reached. Hayes was invited to report treatment and progress. Further record appears not. The diagnosis of tumor stands unquestioned, but whether a hematoma, a sarcoma, or something else, still remains a mystery to the medical world. On April 4th, Hayes presented a case of aneurysm.

The *Southern California Practitioner,* when it began to function, published most of the papers, until it passed out of existence.

When it was indorsed by the association (1885) it was voted that the papers and discussions of the society's scientific programs were to be given to it. This medical journal was first published (January, 1886) by Widney, Kurtz and Lindley. It became a standard authority throughout the world on the subject of climate and disease. In this study it was a pioneer.

From the old fee tables an idea may be had of some of the diagnoses made and the treatments prescribed in those days of yore. But it is not until one studies the minutes of those early meetings that real knowledge is had concerning the advent of the use of the microscope, the value of careful history taking and the different operations for "female troubles" then in vogue.

The ills of the weaker sex had a prominent place in the discussions of the gay nineties. Specimens of ovaries, tubes and wombs were demonstrated in all stages of disease, and Hayes, Kurtz, MacGowan and others entered into these discussions with zest. Although the others present did not always agree with the essayists, the association always tendered said essayists "A vote of thanks," usually signified by a rising vote.

Epidemics always furnished food for thought, speech and medical papers. Diphtheria, malaria, scarlet and smallpox were up for discussion many times, singly and collectively. A surgeon when called upon to discuss these and similar medical topics, would usually start off in this fashion: "When I was doing general practice, I used to see a lot of these cases but now . . ." Although everyone knew he was prescribing for all medical patients he had a chance at.

In March, 1878, Kurtz reported the birth of a baby "weighing eighteen pounds". This did not bring forth as much discussion as did some of the typical meeting subjects. For example, on January 22, 1892, the subject was "neurasthenia", not as time worn then as now. W. Dodge was the speaker. The discussion follows:

George L. Cole: "We all see many of these cases, but fail materially to help them. But perhaps not so much as patients think. I have tried electricity and am pleased to hear it spoken favorably of tonight. I do not think fly blisters as cruel as I used to. We must be careful of anodynes, for fear of a habit being formed."

F. A. Seymour: "Neurasthenia was formerly called general debility. In regard to diagnosis it is a convenient term to cover ignorance. Cases are increasing. Probably due to physicians overlooking trivial complaints which later become serious. In many the symptoms are imaginary, hence the real trouble must be sought for. Discrimination must be used in selecting cases to be treated by electricity and we must distinguish between general faradization and antral galvanization."

W. Lemoyne Wills: "In my experience the term is used to cover medical ignorance. It is not agreeable to treat these patients in private practice. They are nervous, dyspeptic and hard to handle. But if you have them in a hospital where you can keep them under your thumb it is a comparatively easy thing. Weir Mitchell's success in managing these cases (it was the heyday of that great Philadelphian) is due to his magnetism as well as to his absolute control of patients."

William Dodge: "Imaginary or real, the patients suffer and need our best attention."

R. W. Miller: "I want to ask if the writer attributed as a cause, any particular dyscrasia or diathesis?"

Dodge: "I have not so treated the subject. But any depression of the nervous system is favorable to the development of the trouble."

F. A. Seymour: "Plethoric men are just as liable to be affected as the debilitated. The trouble is not confined to any color of eyes or hair."

W. Hitchcock: "The fact that plethoric individuals are subject to the disease is one reason why neurasthenia is a better term than general debility."

Contrast that meeting with a typical surgical meeting of that year and for the sake of followup, a meeting two years later on a surgical subject.

Appendicitis is a subject which present day internists get little opportunity to discuss. Surgeons have closed the discussion. It was different in those days of "Inflammation of the bowels". Surgeons and internists were pretty much undecided then about "perityphilitis", or appendicitis, which we now know as inflammation of the "tonsil of the abdomen".

February 19, 1892, M. L. Moore reported, "A case of perityphilitis, age thirty-eight, an engineer who had taken sick with a chill, sick at stomach and had vomited constantly for sixty hours. He had slight pain in his right side, mostly around the umbilicus and stomach. Treated for inflammation of the stomach and peritonitis, during the time he was sick at Bakersfield. Was brought home on the tenth day with a fever of one hundred and one degrees F., and emaciated, having lost thirty pounds. The tenderness increased toward the iliac region and a bunch the size of a fist appeared above the pubes. The question was what to do. I decided to wait. He suffered some pain, diarrhea and frequent urination. I gave him a capsule of opium, pepsin, and carbolic acid to control irritation of bowels; and hot applications to the groin. When at stool at four in the morning he had a sudden pain with the discharge of a teacupful of pus, after which I could find no fluctuation. I advised him to keep quiet but later he went to an engineers' ball. Said he did not dance but three

days ago he came to me with the right leg drawn up—evidently more trouble."

Now comes the discussion on May 18, 1894, when the subject was appendicitis and there had just been a case reported by W. W. Beckett.

GEORGE W. LAKE: Opened with, "The boy's life was undoubtedly saved by the knife, certainly a remarkable case. We do not know of any drug that will prevent an appendix rupturing and no drug will save a patient in whom we have a general suppurative peritonitis. In a case of ruptured appendix we should open and drain. In catarrhal appendicitis, give physic and if not better in twenty-four hours, operate. In a case where opium has been given you cannot tell how the patient is progressing. It is hard to tell what to do. Be on the lookout and operate early. The mortality of appendicitis is said to be eighteen percent. Fifteen percent would be a larger mortality for operative cases *and if taken in time it should not be over two percent.*"

H. H. DAVISSON: "Interesting end results good under the circumstances. Many patients with the physical build of this boy, who is tuberculous, will stand operation well. I see no indication now of hernia at the site of the wound. I formerly employed the expectant plan of treatment and had good results. But I believe the proper thing to do after a diagnosis is made, is to operate; clean out bowels and operate at once. Diagnosis is not difficult. It is principally the desperate cases that are operated upon."

JOE KURTZ: "I do not believe it easy to diagnose unless pain is in the right position and the appendix is in the right position. I operated upon a case (1889) when but very few cases had been operated upon. Now these operations are numerous. I believe the little ap pendix is often abused. But whenever we have a case with pain at McBurney's point, with or without temperature, we should operate and without delay."

W. W. HITCHCOCK: "The treatment was proper. I believe in operating as soon as diagnosed. There are a few cases when early operation is positively contraindicated."

E. A. FOLLANSBEE: "Recently there has been a reaction concerning the use of the gauze drain because the cross threads prevent rather than favor drainage. I am for using 'wicking'."

E. R. SMITH: "Recovery after general suppurative peritonitis is exceedingly rare, as is also the formation of a quart of pus in three days. This may be because it was possibly of tuberculous origin."

Once when the secretary requested Doctor MacGowan to present a paper, he replied, "I have a good practice, thanks!"

The specialists were not among the fewest to read medical papers. T. J. McCoy, eye, ear and throat specialist, read a report (1895) on, "Forty-nine larvæ or Texas screw worms removed from the nasopharynx and soft palate." George Cole, when discussing, said: "I had personal experience in one of my ears. I was driving one afternoon when I felt a buzzing in the right ear. Stopped almost immediately following. At four in the morning I was awakened by rumbling in that ear and great pain—sought a physician who injected cocaine and removed half a dozen larvæ with an earspoon. The next day, a half dozen more were removed." . . . That fly was sure quick.

A question came up in 1889 concerning the health conditions of Los Angeles. It seems that then as now (and doubtless ever will be) there were in the eastern portions of the United States knockers or writers who belittled Los Angeles. They said mean things of the sewage system and garbage disposal, much to the consternation and dismay of the Los Angeles people and especially their doctors.

The critics did not then, and do not now, realize that no man or groups of men could plan a city and all that goes with it, to care adequately for its needs for one year, let alone ten years, ahead. It is not in man's makeup to do so. The wise ones said Los Angeles had reached her limits of population in 1875, 1885, and 1895. Others, just as versed in wisdom, said the city would have a population of a million people. The fact is, that figure was passed long ago. Streets, although widened recently, are all too narrow for the traffic. New hostelries built for distant future crowds, are already overflowing. Downtown districts, as well as the suburban, are even torn up in order to install new fixtures to meet, in part, the demands. All of which attest that man may plan today, but tomorrow shows his plan inadequate.

To return to that meeting, the slanderous charges were answered by Davisson, Turpin and Moore. It is to be noted that Doctor and M.D. were left off their names in the newspaper story in accordance with that ancient law of the association, "When a doctor's name appears in a newspaper attached to a signed article, his titles must not appear." Their answer was:

"During a recent sewer bond contest, which, from the very nature of the case, resolved itself into two systems for the ultimate disposal of the sewage, viz.: 'Out fall to the sea' and 'Sewer irrigation'. The heated newspaper contest led certain local papers, in their zeal to carry their system, then before the people, to exaggerate our sanitary conditions. This places the city of Los Angeles at a disadvantage before the country at large. Our eastern rivals have seen fit to reproduce these misleading articles to our detriment. By reference to the official records of the Health Department, we find a death rate for 1888 of eight and five hundredths per thousand and for the current year of eight and eighty-nine hundredths per thousand. In these figures are included all the deaths of invalids from other States and foreign countries, many of whom were in a dying condition upon their arrival. The Los Angeles medical association, independent of the merits of either sewer system, being familiar with the facts, deprecates such prejudicial procedures. The business and most populous residence portions of the city are already well supplied with sewers of ample capacity and in good sanitary condition. On the contrary, Los Angeles has less general sickness, and consequently a lower mortality, than any other city of equal size in the United States."

In 1905 the Councilors decided to take in the local nearby medical associations and call them branch associations providing that they would adopt the same working rules or laws as the Los Angeles County Medical Association. This was done, and the county medical association membership received an additional boost.

The year 1905 marked another epoch. From that time on the minute book has been reserved for the acts of the Councilors. This group of men has been increased as the association has grown.

(To be continued)

Critique

Ancient Hindu Heredity Concepts In the *Scientific Monthly* for November 1928, F. S. Hammett called attention to the fact that many ideas about heredity which we regard as very modern may be found in such publications of ancient India as: Satapatha Brahmana; Laws of Manu; Saddharma Pundarika; Apastamba; Hymns of Athara Veda; Institutes of Vishnu; Sankyana Grihya Sutra; Brihadarany a Upanishad, and so on. At least that ought to do for the present. The whole article should be of interest to physicians. Here are quoted only a few of the statements made in the very ancient books: "The same seed which is laid is brought forth. . . The seed infused into the womb is fashioned. . . For whatlike seed is fashioned in the womb, suchlike it is born. . . The animal becomes manifest to its own form, cow to cow, horse to horse, and man to man. . . On comparing the seed and the receptacle of the seed, the seed is declared to be more important, for the offspring of all created beings is marked by the characteristics of the seed. . . Seed is infused into the descendants, and by that infused seed descendants are generated again and again. . . The seed which is infused into the womb becomes generative. . . The generative power is immortal. . . It is from the remote end downwards that a race is propagated. . . Nor should he marry one descended from his maternal ancestors within the firth, or from his paternal ancestors within the seventh degree. Nor one diseased. Nor one with a limb too much. Nor one with a limb too little. Nor one whose hair is distinctly red!. . . If a man wishes that a learned son should be born to him then, after having prepared boiled rice with meat and butter, they should both eat, being fit to have offspring." If you like the samples hunt up the original. You will be surprised and startled at very modern genetic and medical ideas right shoulder to shoulder with the most extraordinary speculation and quasi superstition.

Tooth Decay In the *American Journal of the Diseases of Children* for August 1928 there was discussion of an annual inspection of Rochester school children who were grouped as to dental-decay incidence: Group I had either no dental decay or dental work other than two or three small fillings; Group II had decay in half or more than half their teeth. Mothers were questioned as to their pre-natal diets, the exercise they took, the amount of sunshine they got, and the condition of their teeth. All mothers had above-average exercise but the diet of the Group I mothers contained more green vegetables, fruit, and milk, Group II more meat, potatoes, and sweets. Breast feeding was uncorrelated with dental decay in offspring. Diet and time of tooth cutting were also of no significance. As to the children after one year of age: Green vegetables, fruit, milk, eggs, and meat predominated in the diets of those in Group I, sweets were high and vegetables and fruits low in diets of Group II. While servings of milk in large quantities were likely to crowd out vegetables and fruits rather than carbohydrates, it did not seem to be so dominant in the formation of good tooth structure and prevention of decay. Brushing the teeth was uncorrelated with decay; please note, dentifrice makers. Many more parents of Group II than of Group I children had decayed teeth. It was concluded that diet was the most significant factor in dental decay.

Ultraviolet Ray Transmitting Glasses In *Science* for August 17, 1928 (p. 165) Janet H. Clark of Johns Hopkins reported that one of the best glasses transmitted fifty to sixty percent of ultraviolet rays when new; thirty percent only when aged. The direct sun through it would provide the irradiation in three hours that one might get in one hour without the intervention of the glass. Yet it was sold for offices and schools for placement where the sun rarely shone through it directly. Experiments were carried on in a large seventh-floor room and only 1/120th of the ultraviolet rays reached five meters from the windows glazed with ultraviolet-ray-transmitting glass. If a child had sat there it would have taken it at least twenty hours to get as much irradiation as it would get outdoors in direct sunlight in two minutes, with the sun overhead. Children at school recess or stenographers in the open during luncheon could get as much ultraviolet irradiation as they could get all day in rooms so glazed. The investigator concluded that such ultraviolet-ray-transmitting glass was useless in schools and offices. But they kept selling it.

Voting It is important to know why people vote as they do in a democracy, also why men want office. The *Survey* for November 15, 1928 (pg. 227) illuminates here. Questions were asked in a university town staging a municipal election; the town had 70,000 inhabitants and the university cooperated with the city closely. People voted as they did for whom they did because: He's a friend; needs a job; is a good fellow; goes to church; belongs to my lodge; good to his wife; used to be poor; is a fellow alumnus; rich and don't need the job; will win anyway, so why waste my vote; blank is the best man but I knew he couldn't win. The candidates wanted office for the following reasons: I was born here; I've lived here sixty years; I went to school here; my wife has lived here all her life; I love our beautiful hills; I am a taxpayer; I am a businessman and will give a sound business administration; my children were born here; I believe in the future of our city; I want to see the harbor full of ships; I love my city; I have forty tenants and they all speak to me; I believe in honesty in public office; I believe in pure water; I need a position; I don't want a position; my friends urged me to run.

Tobacco An editorial in the *Medical Journal and Record* for November 7, 1928, stated that Austrian physicians were seeking to curtail the use of tobacco because of the expense, and that Austria's daily smoking bill was equal to her annual deficit for all tuberculosis sanatoria then closed for reasons of economy. Germany's 1912 tobacco bill was said to have exceeded her expenditures on her army—can you believe it? Recent studies showed that thirty percent of the six-year-old boys were smokers, fifty percent of those aged between nine and ten, and ninety percent of older males. Dutch cigarettes set the

Netherlands back seventeen million dollars in 1924. We read: "The results of laboratory and testimonial studies on this subject show, above all things, variability of actual effect and biasing effect of opinion. . . Like takes to like and sees superiority in those of like habits and like ideas."

Sons of Great Men The sons of Hippocrates are all said to have been quite stupid. From the line of Socrates and Aristotle sprang nothing of consequence. Charles V, Peter the Great, and Napoleon, not to mention Oliver Cromwell, left foolish and inconsequential sons. Francis Galton has remarked: "It has often been remarked that the men who have attained pinnacles of celebrity failed to leave worthy successors." (See *Noteworthy Families*, London, 1906.)

Scientific Faith Healings The father of the patient to the physician: "Now, doctor, we don't want you to give our daughter any medicine. We don't believe in medicine. We believe in the healing power of prayer. But we want you to give her a thorough examination to see if we are praying for the right thing." Hope it didn't turn out to be obstetrical or proctological. THE CRITIC

Medicoliterary Notes

Lincoln's famous words, "Where there is no vision, the people perish", are now being used as a most appropriate slogan in the National Society for Blindness' campaign for conservation of the eyes of American workmen. Such conservation, says the Society's bulletin, "is as vital to national defense as is the building of armament and the training of men to use defense equipment". A new handbook for safety engineers, safety inspectors and all connected actively with accident prevention generally and sight conservation in particular, has been published for the National Society for the Prevention of Blindness by the Columbia University Press. The title of this handbook is *Eye Hazards in Industry*, the author, Louis Resnick, late director of Industrial Relations for the Society. The volume is divided into two main sections: The Problem, and The Solution. Part I deals with eye hazards, accidents, diseases, and defective vision; Part II discusses first aid, mechanical guards, process revision, proper lighting, education of employer and employee, and administrative supervision.

* * *

"The life of the handsome, seventy-three-year old physicist, Robert W. Wood, has had from its beginning enough explosive drama to satisfy even devoted followers of Superman and the Lone Ranger". Thus a reviewer describes the biography recently published by Harcourt Brace and Company of the famous American scientist. The title of this interesting new volume, which every one interested in present day scientific development should read, is *Doctor Wood, Modern Wizard of the Laboratory;* the author is William Seabrook. Dr. Wood was the father of many of our modern useful gadgets and procedures, including the sodium lamps of the highways of today, thawing frozen plumbing by use of electricity, animated cartoons, tear gas, and many of the appliances of modern warfare. Another of his many fields of work has been criminology; he has helped the police to solve a number of murders, and has exposed mediums and other frauds. Besides being the writer of more than 260 scientific articles, Dr. Wood surprisingly is the author of that illustrated primer of delightful nonsense, *How to Tell the Birds from the Flowers,* and also, in collaboration with Arthur Train, of several best-seller thrillers. During the first World War he served with the French Bureau of Invention. Truly, a versatile and highly accomplished "wizard"!

* * *

Another interesting volume of poetry has come, through Random House, from the pen of Robinson Jeffers, our present-day American poet who has specialized also in bacteriology and certain fields of medical knowledge. The title is typical of the author, *Be Angry at the Sun;* in other words, just as well curse the sun as these tragic times, which are as inevitable, out of the past that has created them, as our daily source of life, the sun. "Be angry at the sun if these things anger you", he writes. "Watch the wheel slope and turn. They are all bound on the wheel, these people, those warriors, this republic, Europe, Asia". A decade ago the reviewers were describing Jeffers as strong, forceful, but definitely a "decadent"; as harking back to a world of war-inherited depression; as a man whose poems dealt with cruelties and horrors, with low and depraved traits in humanity, belonging to a period gone forever. It is most interesting to note that now these same reviewers call our attention to Jeffers' powers as a prophet, to the "literal truth" of his poems as prophecies of the violence of today.

* * *

The Macmillan Company has recently announced a number of new books of interest to the medical profession. Noteworthy among these are two works on nursing, *The Public Health Nurse in Action,* by Marguerite Wales, with a foreword by Lillian D. Wald; and *Everyday Nursing for the Everyday Home,* by Elinor E. Norlin and Bessie M. Donaldson. The former volume presents actual methods of public health nursing, drawn day by day from reports of the public health nurse in the rural home, the city home, the factory and the school. Emphasis is placed upon the constructive aspects of such nursing, particularly upon helping people to help themselves. The authors of the second volume, *Everyday Nursing for the Everyday Home,* are registered nurses with long experience in private, hospital and public health nursing, and for many years have taught home nursing in the New York City high schools.

* * *

The Oxford University Press has announced the publication of a new journal, *Agenda: A Quarterly Journal of Reconstruction.* The periodical is edited for the London School of Economics and Political Science by Prof. G. N. Clark. Its general purpose is to deal with the problems of reconstruction, and, says the announcement, every effort will be made to secure articles by specialists who understand the problems we shall be facing at the conclusion of the war.

MEDICAL RECORD

INCORPORATING THE
New York Medical Journal, Philadelphia Medical Journal
Medical Record, Medical News, Medical Herald
Kansas City Medical Index-Lancet, Medical Fortnightly,
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We would appreciate any items of current interest which our readers may send in.

WEDNESDAY, MARCH 4, 1942

Medicolegal Notes

"Patient" Defined

The defense in an action on a life policy was that the applicant had falsely stated in his application that he had consulted no physicians within the last five years and had never been a patient in any hospital. The plaintiff beneficiary admitted the deceased had visited a heart specialist four times in two months and had been visited by that heart specialist fourteen times in one week. The heart specialist sent him to another expert on the heart for a cardiographing. The Third Circuit Court of Appeals, Guardian Life v. Clum, 106 F. 2d, 592, on appeal from judgment for the plaintiff (24 F. Supp. 396) reversed the judgment and remanded the case with directions to enter a judgment for the defendant *non obstante veredicto*.

As to the inquiry whether the applicant had been a patient, the court, after noting the philological derivation of the word "patient" from the Latin verb "patio", to suffer, said: "To the man in the street, or in this case the shop, patient plainly connotes a recognized type of professional relationship. A patient is to a doctor what a client is to a lawyer; one who is seeking the benefit of the skill which that doctor or lawyer has been trained to supply. Obviously the emphasis is on the engagement of that skill and not upon the use to which it is afterwards put. There are those who maintain that diagnosis (a Greek word from the verb to know and the preposition between), and search for causes, is far more difficult than the elimination of those same causes. Symptoms are obscure and capable of many constructions; remedies are standard and capable of predictable effect. If patient means one who seeks a physician in his professional capacity, the same must be true of one who enters a hospital in the same rôle. Such an institution is simply a convenient place where the skill of doctors can be obtained. If that skill indicates diagnosis, it follows that an inmate of a hospital, who is there for that purpose, is a patient."

Weight of Conflicting Expert Evidence

In a Workmen's Compensation case by an employee who, while repairing the employer's machines was struck on the left side by a piece of metal weighing between one hundred and one hundred and fifty pounds, the question was whether, as contended by the employee, he suffered a permanent ailment of his left kidney or, as contended by the employer, he had failed to prove his claim that he was discharged as cured of the injuries allegedly resulting from the accident, and that he was suffering from Bright's disease, entirely dissociated from the accident.

The court, affirming an award, decided the case upon the conflicting evidence of urology specialists for both parties which it reviewed and sustained the employe's contention, apparently on the greater weight of the evidence of experts who had examined and treated the claimant throughout an extended period in preference to that based on less thorough examinations by defendant's witnesses. T. Shriver and Co. vs. Court of Common Pleas New Jersey Supreme Court, 17 A. 2d 55, 125 N. J. L. 585.

Basis of Right to Physical Examination of a Plaintiff

The Texas Court of Civil Appeals does not consider that the offering of an x ray picture by the plaintiff in a personal injury action to show the condition in some part of his body (in this case an alleged tearing or laceration of the brain) resulting from the injury is the exhibition physically of the injured part. Until the injured party exhibits to the jury the portion of his body affected by the injury, that court holds that there is "no absolute right of the opposite party to a physical examination by a physician of his choosing, to examine the injured body of the claimant. "Certainly the introduction of an x ray picture of some injured part becomes subject to the examination of experts of the opposite party, but not the person of the injured party unless and until a physical exhibition of the injured part has been voluntarily offered by the party plaintiff. This appears to be the well settled rule in Texas." Kirkpatrick vs. Neal, 153 S. W. 2d 519.

Among the books issued recently by Lea and Febiger, Philadelphia, is a new edition of *Accidental Injuries* by Henry H. Kessler, M.D., Ph.D., F.A.C.S., medical director of the New Jersey Rehabilitation Clinic. This book presents the medicolegal aspects of workmen's compensation and public liability, and all who are interested in this field will find the book an authoritative source of explicit information and sound advice.